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THE PAPER INDUSTRY and PAPER WORLD

AN EDUCATIONAL NEWS MAGAZINE — OCTOBER, 1944

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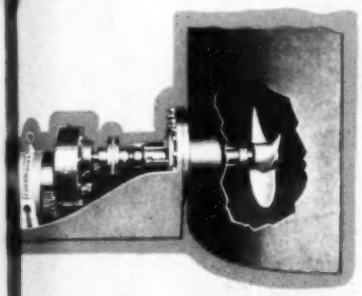

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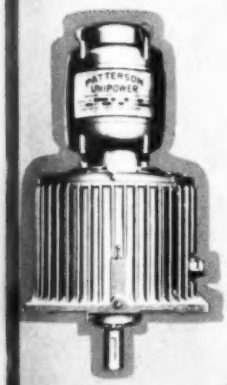

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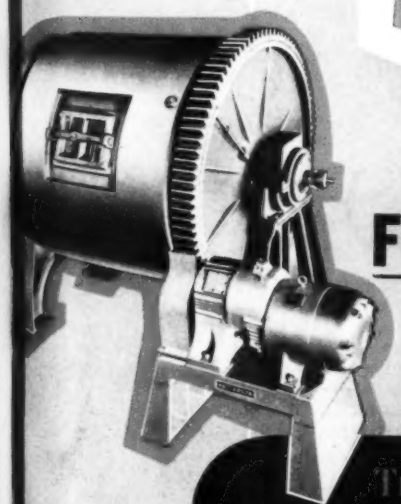

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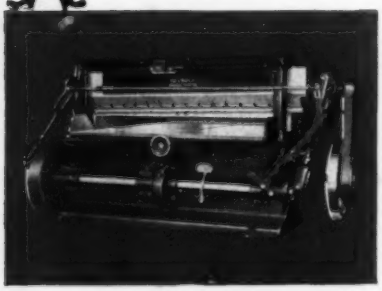

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Of accurate cuts
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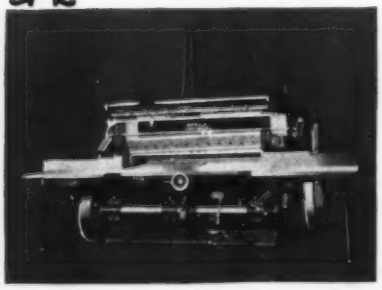

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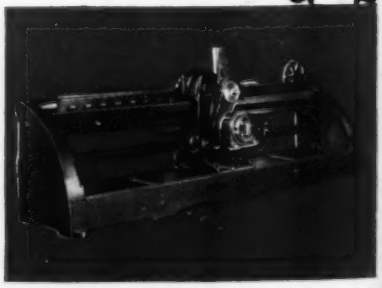

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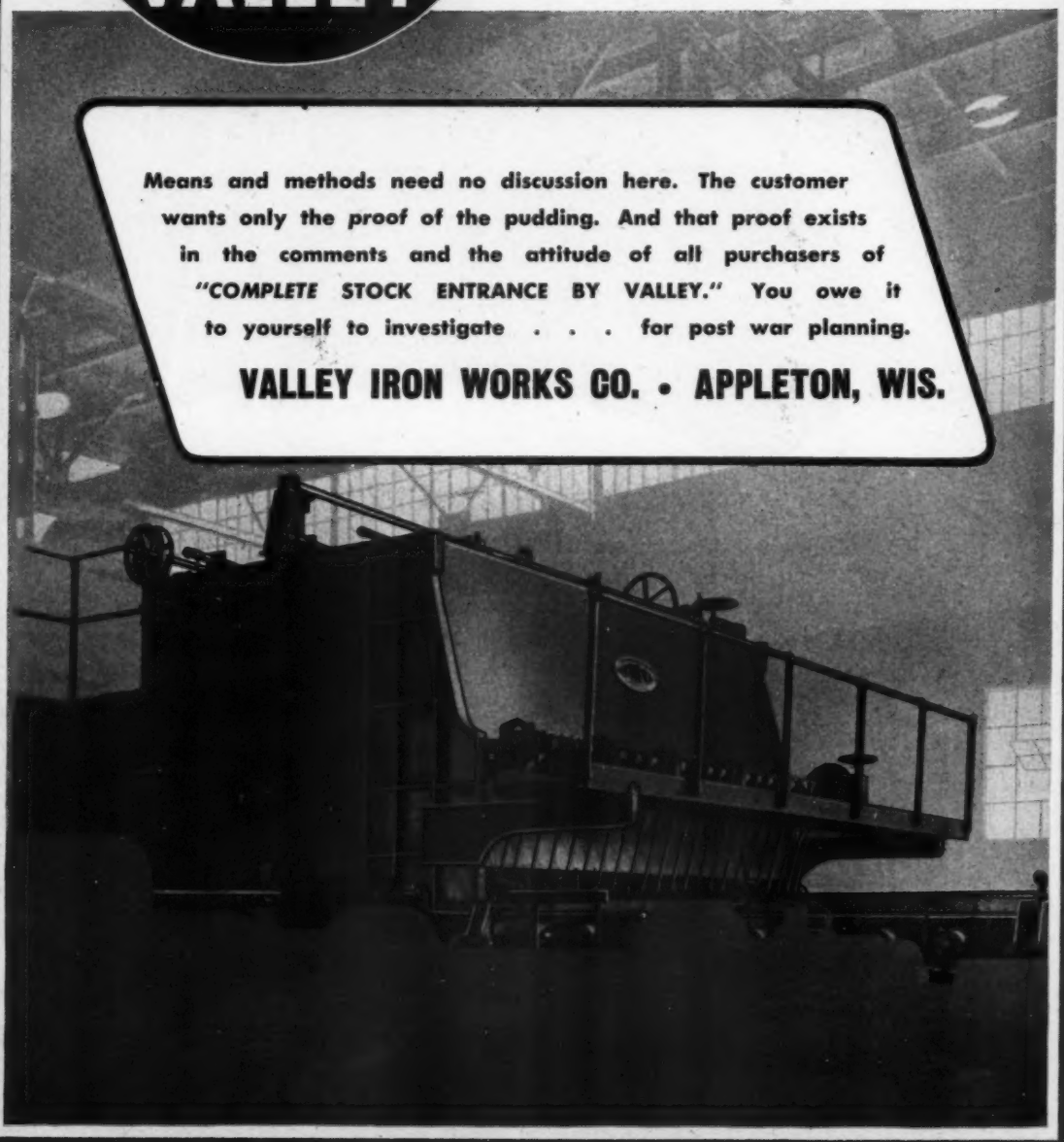

Means and methods need no discussion here. The customer wants only the *proof* of the pudding. And that proof exists in the comments and the attitude of all purchasers of *"COMPLETE* STOCK ENTRANCE BY VALLEY." You owe it to yourself to investigate . . . for post war planning.

VALLEY IRON WORKS CO. • APPLETON, WIS.

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THAT'S FAST! 750 gallons of water a minute is shot under 1400 pounds pressure as a "knife" to debark 40" logs 20' long in 20 seconds. This is just one example of how the paper industry is speeding up its pulp production.

This operation strikingly illustrates the industry's need for really effective lubrication. Note cables, chains and sprockets continuously drenched with water. On equipment like this, as well as on all types of open gears, *Texaco Crater* provides ideal lubrication and protection.

Texaco Crater resists water, cushions load shocks, reduces wear, quiets the noise of large open gears. Crater doesn't ball up, channel or throw off, but clings to tooth surfaces, following through from gear to gear, under high pressures, temperatures and peripheral speeds.

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Texaco lubricants have proved so effective in service they are definitely preferred in many fields, a few of which are listed at the right.

Texaco Lubrication Engineering Service is available to you through more than 2300 Texaco distributing points in the 48 States.

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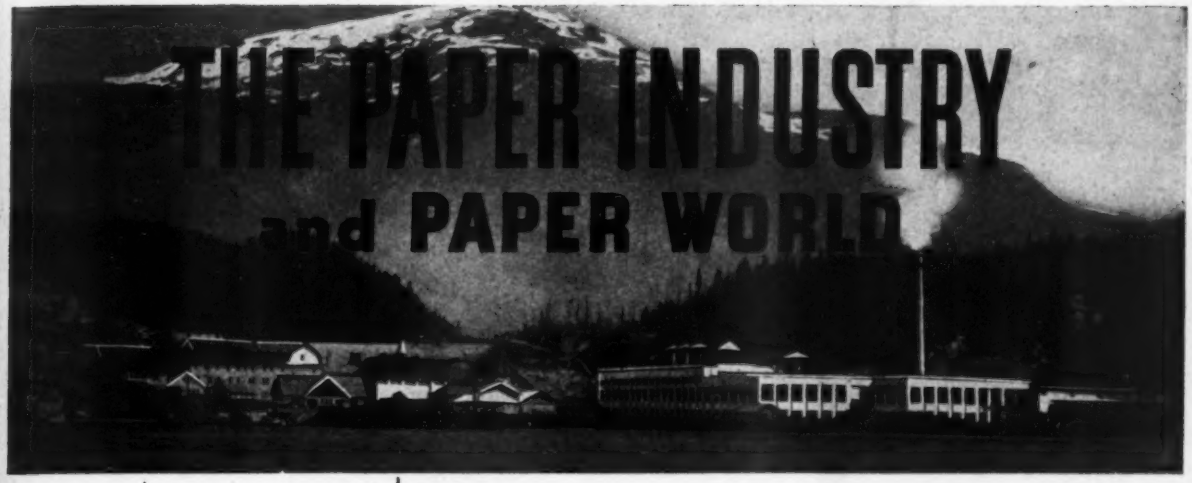

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VOLUME 26 — OCTOBER, 1944 — NUMBER 7

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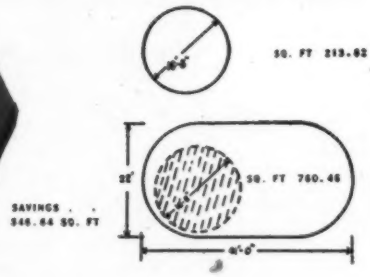
BREAKER BEATER

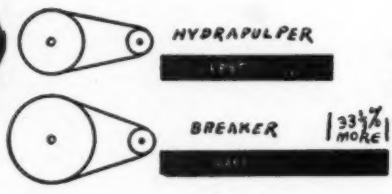
IF you operate a breaker and it is in *fair condition*, order repairs only. It will still be some time before you can obtain a hydrapulper. There are too many already on order to promise you fast delivery.

SPACE REQUIREMENT



For comparable capacity, a 16' Hydrapulper is equal to a 72" x 60" breaker, so that means we save 546.64 square feet of floor space. With an average head room of 12' to take out breaker rolls, we have 6560 less cubic feet to heat. And comparing exposed radiating surfaces, we find that there is a 25% reduction in heat loss through this source.

V-BELT DRIVE

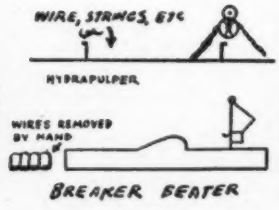


Use of shorter belts and higher speed effects a 25% saving. Drive is placed directly under the Hydrapulper, leaving charging floor free of motor, whereas the Breaker drive must be on same level, thus requiring additional floor space over and above that already mentioned.

PARTICLE SIZE

The area permitting stock to leave the Hydrapulper is actually only 1/10 the size of those in the Breaker. Figure what this would mean in your mill . . . more uniformity . . . less jordaning . . . better finished product.

RAG CATCHER



RAGS REMOVED AS CONTINUOUS ROPE. NO DILUTION NECESSARY.

RAG CATCHER OPERATES PERIODICALLY. NECESSARY TO DILUTE FOR DURATION OF RAGGING OPERATION.

With the Hydrapulper and ragger, it is possible for the first time to remove rags, wire, etc. continuously and without starving the system while doing so. Wires create so much trouble in breaker operation that they are usually removed from bails by hand.

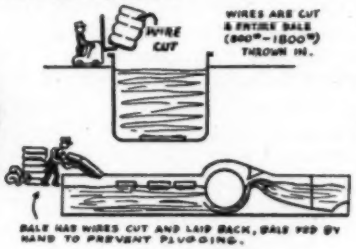
Shartle Bros. Machine Co., Middletown, Ohio

DILTS MACHINE

VS. HYDRAPULPER

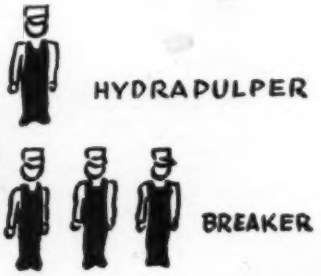
IF your breaker must be *replaced*, there is no time to lose in deciding what to do. You may be thinking "breaker" or you may be thinking "hydrapulper." To assist you in the matter we make a step by step comparison of the two units. The data that follows is based on 125 ton system.

FEEDING



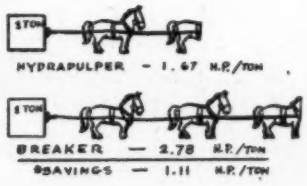
• Feeding a Hydrapulper seems entirely unorthodox. Complete bales (wire, brickbats and all) are thrown in. No sorting is necessary. No storage space around pulper is necessary.

LABOR



• One man can supervise the entire system, due to its compactness and act as his own roush crew to bring paper to pulper, using an electric or gas tractor truck. The average 125 ton system would require at least 3 men on the breaker to adjust, feed, and bring paper to breaker.

POWER



• Power savings per ton will of course vary according to the mill layout. As a rule, however, it is substantial enough to warrant a full investigation on your part and a request that your mill be surveyed by our engineers to ascertain whether you actually need a Hydrapulper. Ask for a copy of "Theory and Practice of Dilts-Cowles Hydrapulper" by Edward Root and R. F. Vokes.

SHARTLE Dilts

Divisions of: The Black-Clawson Co., Hamilton, Ohio

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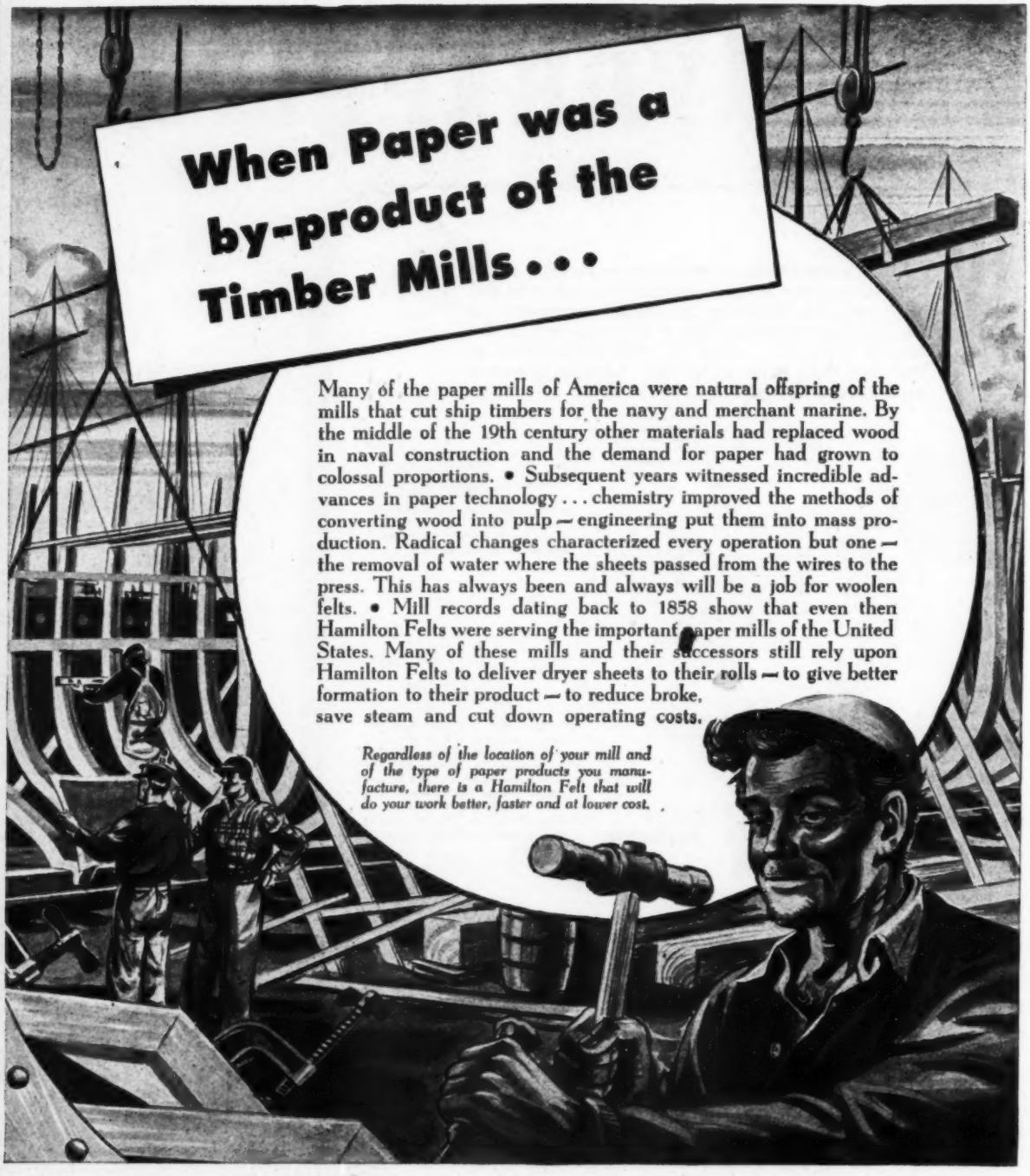

When Paper was a by-product of the Timber Mills . . .
Many of the paper mills of America were natural offspring of the mills that cut ship timbers for the navy and merchant marine. By the middle of the 19th century other materials had replaced wood in naval construction and the demand for paper had grown to colossal proportions. • Subsequent years witnessed incredible advances in paper technology . . . chemistry improved the methods of converting wood into pulp — engineering put them into mass production. Radical changes characterized every operation but one — the removal of water where the sheets passed from the wires to the press. This has always been and always will be a job for woolen felts. • Mill records dating back to 1858 show that even then Hamilton Felts were serving the important paper mills of the United States. Many of these mills and their successors still rely upon Hamilton Felts to deliver dryer sheets to their rolls — to give better formation to their product — to reduce broke, save steam and cut down operating costs.
Regardless of the location of your mill and of the type of paper products you manufacture, there is a Hamilton Felt that will do your work better, faster and at lower cost.

SHULER & BENNINGHOFEN, HAMILTON, OHIO

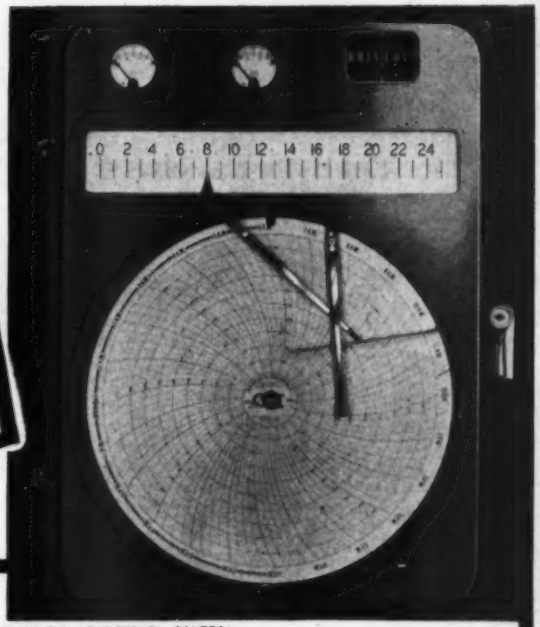
Miami Woolen Mills

Hamilton Felts

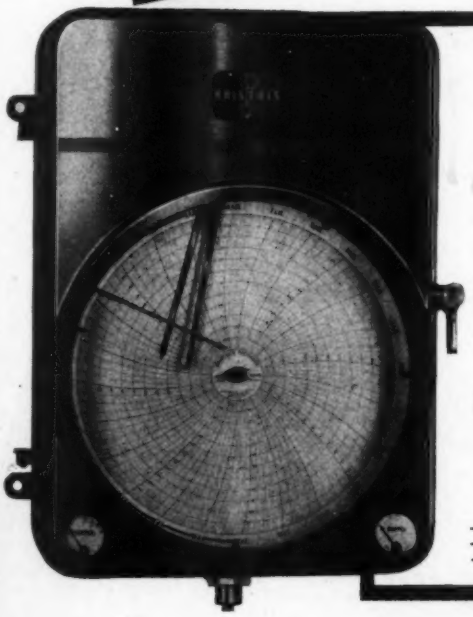
Established 1858

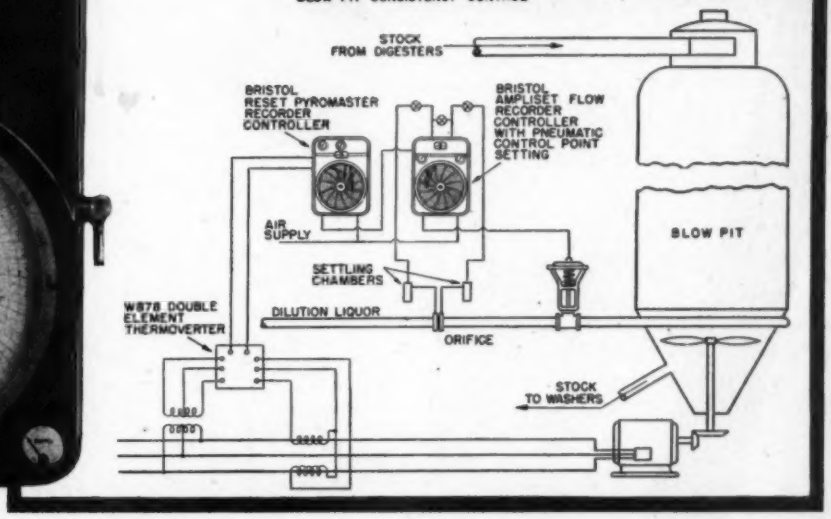
These Bristol Instruments for Blow Pits

WILL AUTOMATICALLY HOLD THE CONSISTENCY OF THE OUTGOING STOCK AT A CONSTANT VALUE



BLOW PIT CONSISTENCY CONTROL





Rate of flow of dilution liquor through the control valve is subject to two variables: variations in level in black liquor storage tank, affecting upstream pressure; variations in head of pulp in the blow pit, affecting downstream pressure.

To protect against the several possible dangerous conditions resulting from high consistency stock, Bristol Instruments have been installed, operating as follows:

Bristol's Ampliset Flow Recorder Controller operates the synchro valve to hold flow constant.

Bristol's Reset Pyromaster Wattmeter responds to changes in motor load (caused by changes in consistency of stock from digester) and sets control point on flow controller to a higher or lower value.

This application of Bristol Instruments should be attractive to any sulphate pulp mill planning a modernization program.

THE BRISTOL COMPANY, 149 Bristol Road
WATERBURY 91, CONN.

The Bristol Co. of Canada, Ltd. Toronto, Ontario
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Engineers Process Control for Better Products and Profits

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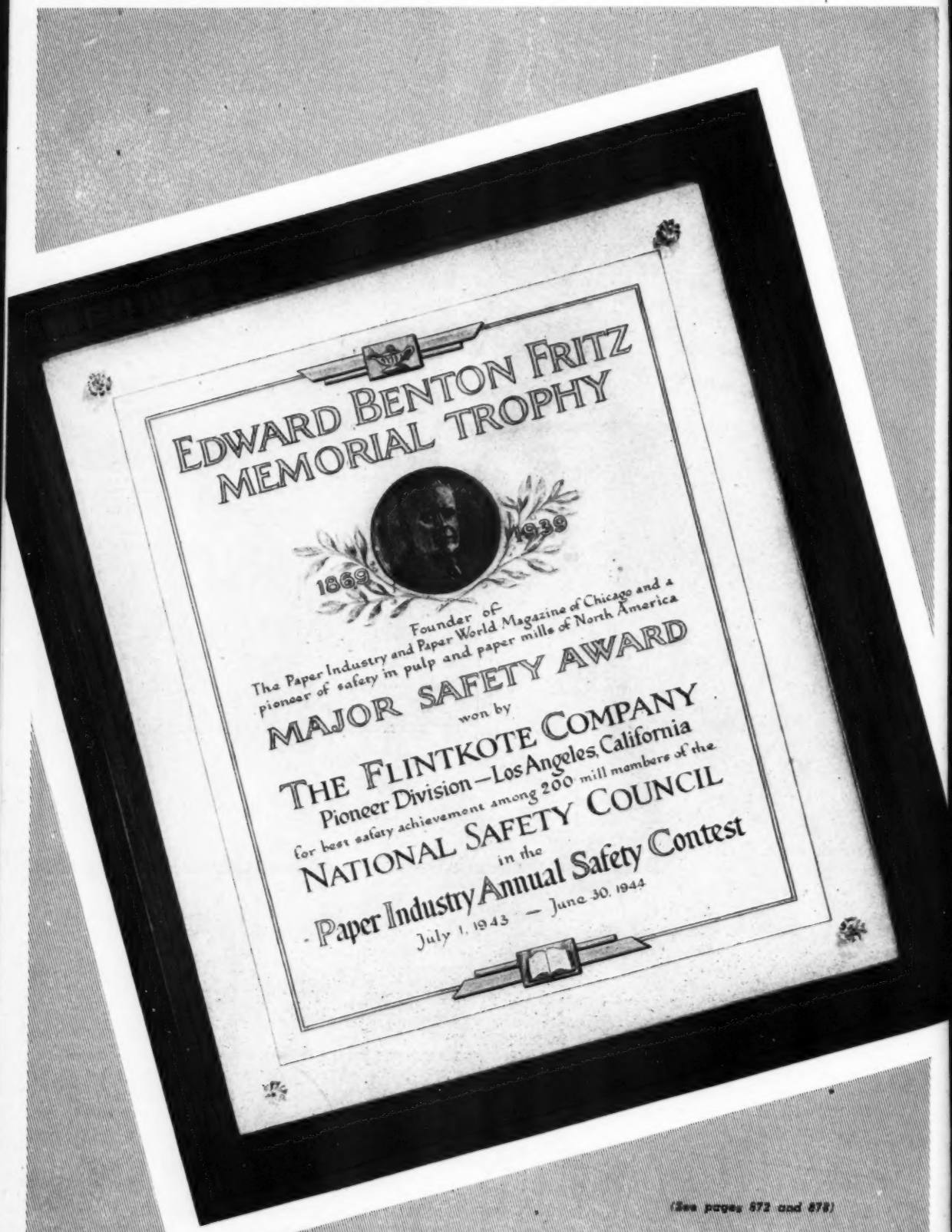
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The Paper Industry and Paper World Magazine of Chicago and a
pioneer of safety in pulp and paper mills of North America
MAJOR SAFETY AWARD
won by
THE FLINTKOTE COMPANY
Pioneer Division—Los Angeles, California
for best safety achievement among 200 mill members of the
NATIONAL SAFETY COUNCIL
in the
Paper Industry Annual Safety Contest
July 1, 1943 — June 30, 1944

(See pages 872 and 878)

TRADE WINDS

☆

Washington News

Pulpwood Receipts Show Upward Trend

▸▸▸ THE WAR PRODUCTION Board announced on September 27 that pulpwood receipts, including imports, for August 1944 totaled approximately 1,705,000 cords. This level of total receipts at pulp mills is about 12 per cent above that of August 1943 and about 11 per cent above August 1942. Although the upward trend in pulpwood receipts is being maintained, WPB officials pointed out that a regional analysis of receipts indicates pulpwood receipts are not sufficiently high to allow pulp mills to operate at the capacity necessary to meet the present and anticipated high level of demand for military and essential civilian items.

August receipts of domestically produced pulpwood amounted to 1,502,000 cords, or about 17 per cent above August of 1942 and 1943 receipts. However, WPB said, in future months much greater effort must be expended to produce a greater quantity and a much higher percentage of long fibered species (spruce and fir). They also indicated that adequate inventories of broad-leaved species cannot be utilized unless a high percentage of long fibered wood is available. Efforts to increase pulpwood production in fall and winter months must be directed to producing the necessary amounts of spruce and fir.

During the first eight months of 1944, mill receipts of domestic pulpwood totaled about 10,328,000 cords. This amount is 24 per cent above that of the corresponding period a year ago and approximately the same as in 1942.

Domestic receipts in the Northeast region were about six per cent above 1943, but only about one per cent above those of 1942. Increased production of pulpwood by farmers accounted for a substantial portion of the increase in this region. Domestic market wood was nine per cent higher than in 1943, while receipts from company woods operations were only about two per cent higher than a year ago.

Imports of Canadian pulpwood in the Northeast region were reported 13 per cent less than August 1943. This drop in Canadian receipts brought total receipts for this region down below those of 1943 by approximately two per cent.

Continued and increased efforts to produce pulpwood must be made in the Northeast region, according to WPB officials. Inventories in this region are about 15 per cent below those of August 1943 and, with receipts still falling below those of 1943, a critical production problem continues to exist, they said.

August domestic receipts in the Appalachian region were six per cent above a year ago. However, with the peeling season ended in August, it was noted that the amounts of peeled wood produced will not meet the requirements for peeled wood in this region.

Receipts of pulpwood in the South were about 23 per cent above those of August 1943. However, even with a high level of receipts at the mills, the shortage of labor and mechanical facilities in the mill yards of some of the southern pulp mills have created pulp production problems.

August domestic receipts in the Lake States were 154,000 cords or about 37 per cent above a year ago, but, receipts were only one per cent above 1942. Although inventories are 28 per cent above a year ago, it was recalled that the Lake States were in a poor inventory position a year ago. Inventories of Lake State mills were reported as swollen this year with large quantities of rough poplar. Such amounts of short fibre wood cannot be utilized unless adequate supplies of spruce and fir are available, it was said, and consequently it will be necessary to increase the current effort to bring about greater production of spruce and fir this fall and winter.

The Pacific Northwest region experienced fine logging weather in August. Domestic receipts for August were about six per cent above those of 1943. However, hot, dry "fire" weather was experienced in early September and logging operations had to be curtailed and suspended for periods of time in some areas. The future prospects of even maintaining the present level of receipts in the critical Pacific Northwest area were said to depend on whether or not the minimum requirements for heavy-duty tires for maintenance of trucks now operating in the logging industry in this area are met.

The record in rough cords of do-

mestically-cut pulpwood by regions for the month of August and the first eight months of 1944 (excluding imports) follows:

	August 1944	First Eight Months of 1944
Northeast	219,000	1,308,000
Appalachian	150,000	1,041,000
South	704,00	4,617,000
Lake States	154,000	1,607,000
Pacific Northwest	275,000	1,755,000
TOTAL U. S.	1,502,000	10,328,000 Rough Cords

Imports of pulpwood by United States mills were distributed during August and the first eight months of 1944 as follows:

Northeast	109,500	690,500
Appalachian	1,700	3,200
Lake States	78,200	320,600
Pacific Northwest	13,600	71,800
TOTAL U. S.	203,000	1,086,100 Rough Cords

PULPWOOD DEMAND WILL CONTINUE AFTER V-DAY

The newly organized Eastern Pulpwood Industry Advisory Committee was informed by the WPB at a recent meeting that demands for maximum production of pulpwood will continue after "Victory in Europe" Day or until the demands for paper and paper products relax.

To the end that WPB, through its Pulpwood Production Branch, can keep in close touch with pulpwood production and the special problems confronting the industry, committee members were asked to keep WPB officials advised on all developments in eastern sections of the country. Members present at the meeting represented the following four regions: Northeast, Appalachian, Lake States, and South.

While pulpwood production is currently high, there is still a critical shortage of long-fibered species, such as spruce and fir in the Northeast and Lake States regions, caused by a continuing shortage of labor in logging camps. In an effort to meet this shortage, the War Manpower Commission, through the U. S. Employment Service, is planning an intensive recruitment program to draw workers to pulpwood operations. The committee also discussed the use of war prisoners to supplement free labor, as well as the factors of transportation, mechanical equipment and Canadian imports of both pulpwood and labor.

Committee members asked that farmers in the Northeast and Lake States regions be urged to get out their available spruce and fir. Farmers in all regions, in cutting their pulpwood, are encouraged to use their own trucks where possible to deliver their wood to a rail siding or to a mill, and thereby receive more money for their product. This effort will help tremendously with the present shortage of labor, trucks, tires and gas at the mills, WPB said. Another suggestion was that farmers contact mills, pulpwood buyers, county agents and project foresters of the timber production war projects for the purpose of making definite arrangements for the purchase of their wood before cutting it, thus saving themselves time and labor.

DONALD NELSON RESIGNS AS HEAD OF THE WPB

The resignation of Donald M. Nelson as chairman of the War Production Board was announced on September 30. Julius Albert Krug, who has been acting WPB chairman during Mr. Nelson's recent trip to China, was appointed by the President to succeed Mr. Nelson. Mr. Nelson, reports state, will remain in Washington in a high post of major importance.

Immediately upon accepting his new office, Mr. Krug announced the resignation of Donald D. Davis as WPB vice chairman in charge of field operations. He will be succeeded by James Folger, until recently WPB regional director at San Francisco.

ADVISORY COMMITTEE FAVORS SOME PAPER MACH'Y RESTRICTIONS

Retention of modified restrictions on the purchase, lease, rental or acceptance of paper mill machinery was recommended by the Pulp and Paper Machinery Industry Advisory Committee at a recent meeting, with the War Production Board.

It was the consensus of the committee that since Order L-83 is a distribution order and does not restrict or control production, it should be retained in modified form for an indefinite period after "Victory in Europe" Day, or until conditions in the production of paper and in the manufacture of paper mill machinery indicate that the order is no longer necessary.

Continued military demands for paper and paperboard products even after the termination of the war in Europe, added to increasing civilian demands, can be met only by an orderly distribution of equipment for the manufacture of those paper grades still of military importance, and in general for the rehabilitation of all mills, WPB officials said.

WPB has urged the manufacturers of machinery to maintain the high level of operation that has been brought about through war contracts so that these added facilities may accelerate the production of paper mill equipment as war contracts are withdrawn. WPB officials intimated that production of equipment could easily be raised so that it would be 50 per cent greater than the pre-war operating level. Government officials believe that retention of L-83 would aid them in re-establishing paper and paperboard mills on a normal peacetime basis as equitably and as soon as possible.

WPB's Paper and Paperboard Divisions wish to aid paper-producing mills first to get all the materials and equipment they need for repairs and replacements, to be followed by new machinery to further increase the output. To this end, WPB officials urged paper manufacturers to make applications in accordance with L-83 and to file their orders with machinery manufacturers as soon as possible.

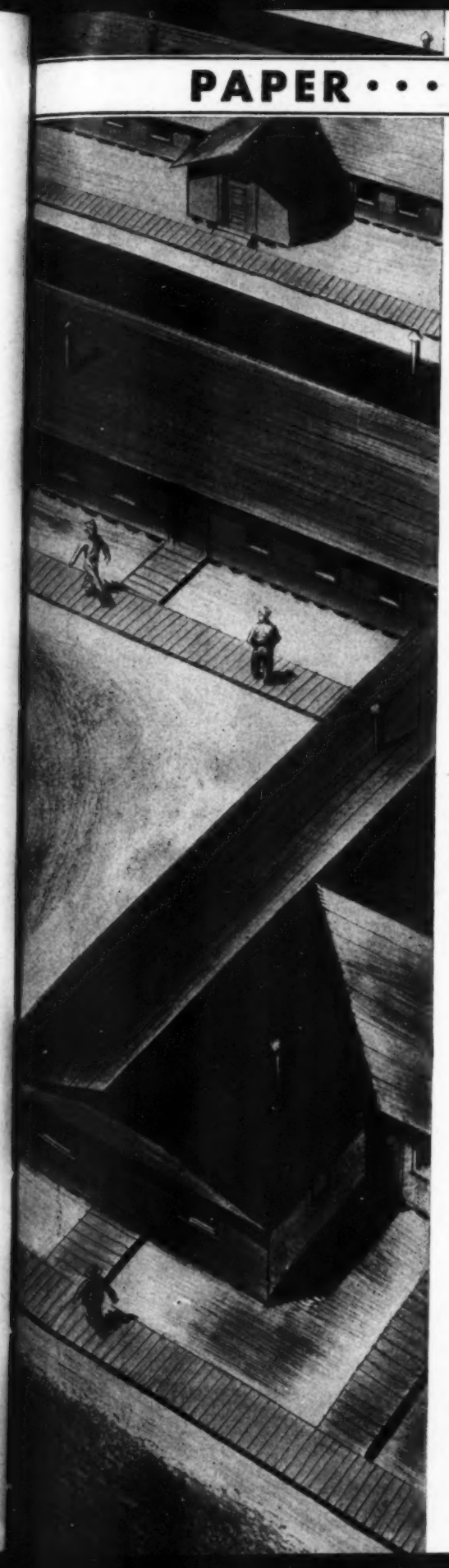
RECENT CHANGES IN THE FOREST PRODS. BUREAU

A long-expected series of changes in the Forest Products Bureau of the WPB has taken place, due to the time having expired in which several leading representatives of the paper industry had agreed to give their time to war service.

Announcement on September 14 made the following official changes: Walter H. Wilcox was named director of the Paper Division. He succeeds Rex W. Hovey, who is returning to his company, the Oxford Paper Company, New York City. Mr. Hovey will continue his position with the Paper Division as a special consultant. Mr. Wilcox has been with WPB since August 14, 1944, serving as deputy director in charge of the Fine Paper Branch. He is now on leave of absence as assistant to the president of S. D. Warren Company, Boston, Massachusetts.

James L. Madden, who has been in charge of the Pulpwood Branch of the Paper Division since November, 1943, is returning to his company, the Hollingsworth & Whitney Company, Boston. Mr. Madden has consented to serve as consultant of the Pulpwood Branch. He will be succeeded by Curtis Hutchins, who comes from the Dead River Company, Bangor, Maine, and is now on leave from that company. For the past several months Mr. Hutchins has been in charge of pulpwood production in the northeast section of the United States.

PAPER · · · America's 6th Industr



TREATED PAPER FOR ARMY ROOFS

(NEWS ITEM: *Impregnated paper felt building materials are being used on buildings constructed to house our Armed Forces.*)

Impregnated paper felt building materials are being used in the construction, maintenance and repair of military establishments and housing for both military personnel and war workers throughout the country. Such materials as felt shingles, roofing felt and roll roofings are made of a paper base and then impregnated to withstand any weather condition.

We are now building a complete new Stream-Flow Vat System for a West Coast manufacturer. Sufficient essential materials have been released by the WPB. It is fitting that our first installation since the war began will be used for the manufacture of paper felt for roofing purposes for our Armed Forces.

Paper for military plans . . . Paper for blackout purposes . . . Paper for camouflage nets . . . Paper for insulating Army buildings . . . New uses for paper, calling for new standards of lightness and toughness; new standards of quality in performance . . . New responsibilities—new opportunities for the Pulp and Paper Industry.

Puseyjones engineers will welcome the opportunity to work with you in your Post-War planning. We have prepared three informative articles: "The Post-War Fourdrinier," "Development of Stream-Flow Vat System," "The Flow Spreader." Ask for reprints by name.

THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-Making Machinery
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THE SIGN OF TRADE MARK SUPERIOR QUALITY

Stanley Styles, of the Martin Cantine Company, has gone to the Fine Paper Branch of the Paper Division.

Harold Boeschenstein, acting director of the Forest Products Bureau, has been advanced to deputy vice chairman for operations of the War Production Board, but he will retain charge of the Forest Products Bureau.

WHITNEY LEAVES WPB PAPERBOARD DIV.—BACK TO HINDE & DAUCH CO.

The new director of the Paperboard Division of WPB is Arnold B. Huyssoon, vice president and sales manager of the Continental Paper Company, Ridgefield Park, New Jersey. He succeeds R. W. Whitney, who on October 1 returned to his position as vice president of the Hinde and Dauch Paper Company, Hoboken, New Jersey. He had been on leave since January, 1944. However, Mr. Whitney will continue to be available as a special consultant to the director of the Paperboard Division.

Since July, 1944, Mr. Huyssoon has been acting as assistant director of the Paperboard Division and chief of the Boxboard and Cartons Branch. During the period from April, 1943, through November 12, 1943, he also served WPB as chief of the Paperboard Section of the former Pulp and Paper Division.

▶▶▶ THE GENERAL PAPER and paperboard shortage and high demands for paper will continue probably for 10 months after "Victory in Europe." This statement was given by the WPB to the members of the Over-All Paper Industry Advisory Committee at its recent meeting.

▶▶▶ A REPORT ON THE SWEDISH pulp situation has been given out by the Bureau of Foreign and Domestic Commerce, indicating that Sweden has stocked 600,000 tons of pulp for shipment as soon as the Atlantic is open for traffic, and is producing at a rate that has filled all available warehouses, some being stored in idle ships. Sweden expects to ship over 200,000 long tons monthly when war conditions permit, much of which will come to the United States.

PAPER HOLIDAYS

The WPB states that Paper Holidays are being declared in cities and towns throughout the country in an effort to stretch limited supplies of paper. During these paper holidays, retail merchants will use no bags or wrapping paper, except for articles that require wrapping for sanitary and protective purposes. These days are sponsored by the WPB Conservation and Salvage Divisions, in co-operation with the Periodical Publishers National Committee.

The first Paper holiday was held in Peoria, Illinois, this past summer. Not only were large quantities of wrapping and packing materials saved during the holiday, but also paper salvage in that city increased 600 per cent as the public expanded its paper consciousness.

Paper holidays in other cities, based on the Peoria plan, may be declared for one week, one month, or for the duration. From now on, it is thought dealers will experience a real shortage of packaging materials due to depletion of their stocks on hand and an ever-increasing paper demand.

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▶▶▶ WITH A LOSS OF $250,000, the plant of the Columbia Box Board Mills, Inc., Mellenville, New York, was completely destroyed by fire early Sunday morning, September 24. Failure of the sprinkler system is believed to have been responsible for the rapid spread of the fire.

◆

"UNITED WALLPAPER, INC." IS UNITED'S NEW NAME

Stockholders of United Wall Paper Factories, Inc., voted at their recent annual meeting to change the corporation name to United Wallpaper, Inc. At the same meeting, the seven members of the board of directors were reelected.

Since the war, several United plants have been devoted exclusively to the production of incendiary bombs, flares, smoke bombs, and other war materiél. The company was founded in 1927, the result of a merger of four major wallpaper factories operating plants in New York, New Jersey, Pennsylvania, Illinois, and Wisconsin.

◆

FINANCIAL

While the general tendency in prices of paper mill securities during September was downward, quotations were not radically changed, and in many issues the prices were even higher than a month ago.

Crown Zellerbach Corporation—Net profit for the quarter ending July 31 was $1,713,300, as against $1,839,702 for the same quarter in 1943.

Rayonier, Inc.—Net income for three months ending July 31 was $453,596 as against $454,000 for the same quarter in 1943.

Schumacher Wall Board Corporation—Net profit for the second quarter was $40,025 as against $35,715 for the same quarter in 1943.

St. Regis Paper Company—The purchase of more than 75 per cent of the stock of the Skenandoa Rayon Corporation, of Utica, for approximately $2,500,000 is announced elsewhere in this issue. The St. Reigs Company plans to expand the present capacity of 8,000,000 pounds of viscose yarn annually to 20,000,000 pounds. St. Regis has offered to buy any of the remaining 25 per cent of the Skenandoa stock at $10 per share.

West Virginia Pulp and Paper Company—Profit for the nine months ending July 31 was $1,894,222, as against $2,322,172 for the comparable period in the preceding fiscal year.

New York Stock Exchange—Stocks

	Closing Prices Sept. 25	Aug. 25
A.P.W. Paper Co..	4⅛	4⅛
Celotex	14	14⅛
Same Preferred.....	18¾	*18–18⅜
Certain-teed Products..	6½	6¼
Same Preferred.....	106	101
Champion P & F Co.. ..	28½	27¾
Same Preferred..*111½–113		*112–112¾
Container Corp.	26¼	26¼
Cont. Diamond	10⅞	11⅜
Crown Zellerbach	19¼	19¾
Same Preferred.....*102–102⅜		102½
Dixie Vortex *20⅛–20⅜		*17½–17⅝
Same "A"	47	47
Robert Gair	4⅜	4½
Same Preferred.....	15¼	*16½–16⅝
Gaylord Container	20⅝	19⅛
Same Preferred....*53½–54		*52¾–53
International Paper	19½	19⅝
Same Preferred.....	83	82⅞
Kimberly-Clark	*38–40	39
McAndrews & Forbes..	29½–30	29⅞
Masonite	43¾	44½
Mead Corp.	12	11⅜
Same Preferred.....	*97–99	97½–99
National Container (New)	10⅝	21⅞
Paraffine Cos	53	55–57½
Same Preferred....105–110		*105½–110
Rayonier	17⅜	16½
Same Preferred.....	*31¾–32¼	31⅝
Scott Paper	*42¼–42⅝	42⅞
Same 4½% Pref..*112½–113		*111–112
Same 4% Pref.....	*108–109	*109–110
Sutherland Paper	30	*32–33¼
Union Bag & Paper....	13⅞	12⅝
U. S. Gypsum.....	78½	78½
Same Preferred.....*175–179⅞		178
West Va. P & P Co.....	24¼	26¼
Same Preferred.....*107–108¼		107

New York Stock Exchange—Bonds

Abitibi 5%	89	89½
Celotex 5¼%	.....	.....
Certain-teed 5½%	101¾	102
Champion P & F Co....	.....	.....
Internat'l Paper 5%....	.....	103¾
Same 6%	.....	108
West Va. P & P Co.....	.....	.....

New York Curb Exchange—Stocks

Am. Boxboard	.....	.....
Great Northern	35⅝	35
Hummel-Ross	7¾	6¾
St. Regis	6	6
Taggart	.....	5⅞
United Wall Paper....	4¼	3⅞

*Closing Bid and Asked Prices.

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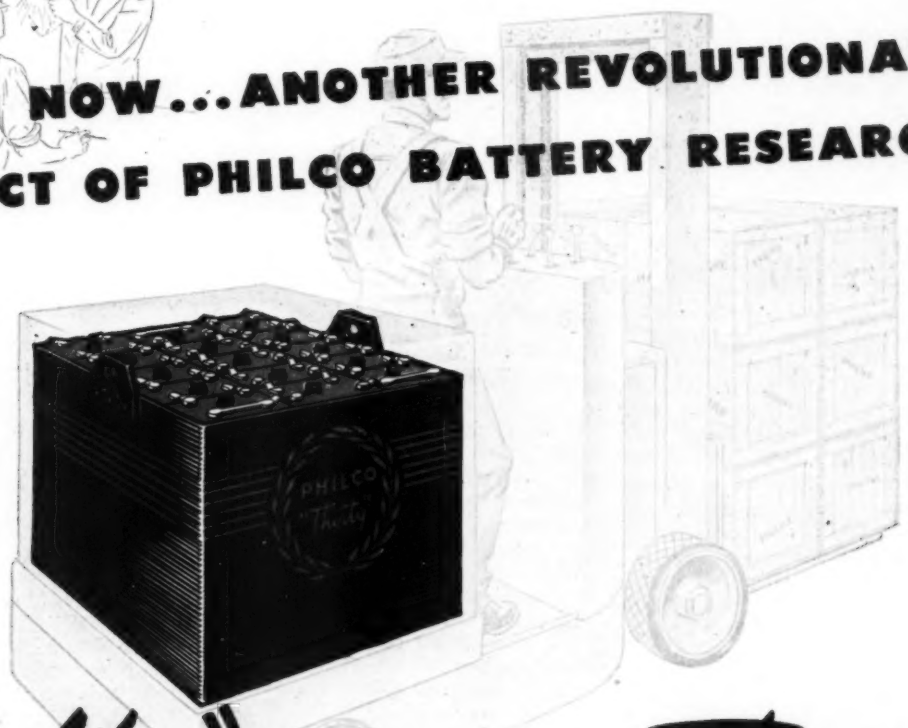

The New "PHILCO Thirty" gives 30% Longer Life

A few months back Philco pioneering gave industry the outstanding development in stationary batteries—Philco Vitrabloc. Today, Philco engineering research scores again—with the top advance in motive power batteries—the new "Philco Thirty." With 30% longer life, and *more*—with new economy in maintenance and lower depreciation—here is headline battery news. Here, for the first time in any battery, is a revolutionary new principle of fabricated insulation—developed, proved and backed by Philco. Here, too, is that famous 10% extra work capacity made possible by Philco's modern plate design. Ready today, is this great new post-war battery—the new "Philco Thirty"—now available in certain types and limited quantities. Write for full information.

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11 STATE FORESTRY CONFERENCES TO BE HELD IN THE SOUTH

The Forest Farmers Association Cooperative, 12-state organization of timber growers of the South, in compliance with requests by ODT for restriction of traffic, will not hold a South-wide forestry conference as it did last year. Instead state meetings are scheduled.

These State Forestry Conferences will urge better care and more consideration for southern forest resources, which furnish one-fifth of the created assets of the South. They will stress that the average Southerner derives 20 per cent of his income from the forest created wealth, that "in every southern quarter there is a 'Wooden Nickel'." Two main topics will be discussed, Forest Fire Prevention and Better Forestry Practices on Farms.

In addition to these topics, strong committees of timberland owners are expected to present recommendations concerning the extension of fire protection to include all forested lands in the respective states; introduction of forestry as a subject into the public curriculum; means of making forestry research of greater practical value to timberland owners, and the attitude of timber growers on pending or needed legislation. A special committee to consider the enforcement of existing laws applying to incendiary fires and to timber stealing is also planned for each state conference.

These State Forestry Conferences will be held with the approval and the co-operation of the state forestry departments and the extension divisions of the several states, and also of the United States Forest Service. The state director of the Forest Farmers Association Co-operative will act as chairman for the meeting in his state.

The State Forestry Conferences are scheduled as follows:

Tennessee—Z. Cartter Patten, chairman, October 25, Hotel Andrew Jackson, Nashville, Tenn.

Louisiana—P. A. Bloomer, chairman, November 1, Bentley Hotel, Alexandria, La.

Texas—E. L. Kurth, chairman, November 3, Angelina Hotel, Lufkin, Texas.

Arkansas and Oklahoma (Chairman to be announced)—November 7, Kilgore Hotel, Fordyce, Ark.

Mississippi—P. N. Howell, chairman, November 9, Pinehurst Hotel, Laurel, Miss.

Alabama—Charles Dixon, chairman, November 14, Battle House Hotel, Mobile, Ala.

Georgia—H. Langdale and Mr. A. V. Kennedy, co-chairmen, November 16, Dempsey Hotel, Macon, Georgia.

South Carolina—Lamar Brantley, chairman, November 20, Jefferson Hotel, Columbia. S. C.

North Carolina—B. Hampton Ellington, chairman, November 22, Carolina Hotel, Raleigh, N. C.

Florida—V. G. Philips and C. P. Kelly, co-chairmen, November 28, Seminole Hotel, Jacksonville, Fla.

Virginia—December 15. Details to be announced.

◆

LAKE STATES REGION WILL ORGANIZE FOR WASTE UTILIZATION

At a meeting held September 21 at the Drake Hotel, Chicago, under the auspices of the National Council for Stream Improvement, steps to organize a standing Regional Industry Advisory Committee for the Lake States Region were taken. This committee, which represents pulp, paper, and paperboard mills in the states of Michigan, Wisconsin, and Minnesota, will, with similar committees for the other regions of the United States, play an important part in implementing the activities of the National Council which is undertaking a broad program of research directed toward solution of the industries' waste utilization and disposal problems. Similar committees for the South Central and Pacific Coast Regions have already been organized, and committees for the other regions of the United States will be organized during the next two months. Through the activities of such committees, the industrial waste disposal problems of the pulp, paper, and paperboard industries in each region will be presented for appraisal and the nature and direction of current research necessary to a solution will be determined.

The National Council for Stream Improvement, representing the bulk of the pulp, paper, and paperboard industries in the entire United States, has undertaken a broad program looking toward solutions to all phases of waste problems involved through a balanced program of fundamental and applied research based on an evaluation of the industries' experience, an appraisal of water conditions, and a review of all prior research and development work recorded both here and abroad. A multiple fellowship at the Mellon Institute of Industrial Research has been established and began functioning on research problems on July 1, 1944. Research programs at other institutions in various regions of the country will be established as soon as the various problems have been appraised by the National Council and the Regional Committees.

Attending the meeting were representatives of the following companies: Nekoosa Edwards Co., Minnesota & Ontario Paper Co., Kalamazoo Vegetable Parchment Co., Cornell Wood Products Co., Thilmany Pulp & Paper Co., Tomahawk Kraft Paper Co., The Northwest Paper Co., Central Paper Co., American Box Board Co., Combined Locks Paper Co., Port Huron Sulphite & Paper Co., Kalamazoo Paper Co., Bryant Paper Co., Michigan Paper Co., Neenah Paper Co., Stevens Pulp & Paper Co., Marathon Corporation, Blandin Paper Co., Little Rapids Pulp Co., Ward Paper Co., Tomahawk Pulp Co.

Following the organization meeting the Committee and industry representatives discussed common problems with engineers representing The Chicago Sanitary District, The Michigan Stream Control Commission, The Wisconsin State Department of Health, The Water Pollution Commission of Wisconsin, Minnesota State Department of Health, and The Indiana Water Commission. Future co-operation between the industries and all the agencies involved was discussed.

◆

DR. JAHN COMMENTS ON WARTIME CONDITIONS IN SWEDEN & FINLAND

Sweden's ingenious applications of wood and pulp to counteract her present wartime economic isolation were described by Edwin C. Jahn, professor of forest chemistry of the New York State College of Forestry, who recently returned to Syracuse after spending more than a year in Great Britain, Sweden and Finland where he studied wartime developments in the pulp and paper and forest industries, for the benefit of the American industry and the Forest Service of the U. S. Department of Agriculture.

Sweden's economic life is dependent upon import and export, with pulp, paper and timber products among the principal export items. Completely hemmed in by German occupied territories, she has had her markets cut off and her trade restricted to Germany, occupied countries, and by safe-conduct ships to Spain, Portugal and South America, Dr. Jahn explained. Due to lack of imports, Swedish industry and technical skill has had to improvise and develop the raw materials at hand. The pulp and paper industry has been out in front in many new developments. Operating during the war on about 50 per cent of its normal capacity, the Swedish pulp and paper indus-

9 Reasons Why Swenson-Nyman Pulp Washers are *more efficient*

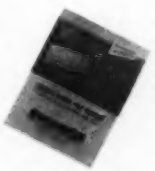
Photos of Swenson-Nyman Pulp Washer Installations.

1. Two-stage countercurrent washing on a single drum
2. Strong and weak liquors handled separately
3. Independently controlled vacuum on each stage
4. Uniform distribution of vacuum at all times, across the entire sheet
5. Picks up pulp at low submergence level
6. Uniform pick-up and sheet formation
7. Large washing area is twice the sheet forming area
8. Backwashing is entirely eliminated
9. Low point of discharge—at center line of drum

These are the reasons why Swenson-Nyman Washers are replacing two (sometimes three) ordinary drums in kraft and soda pulp mills. Let Swenson engineers help you determine the possibilities for increased efficiency in your pulp washing operations.

WRITE FOR YOUR COPY OF THIS NEW BULLETIN

It gives complete details about the operation of the Swenson-Nyman Washer. Ask for Bulletin F-104.



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try is filling more varied uses than ever before. A small but vigorous organic chemical industry has grown up alongside the pulp industry, producing industrial and drinking alcohol, glycol and glycol derivatives, acetic acid, butanol, soap, turpentine, and several other industrial organic chemicals.

Sweden's two principal pulp and paper export items to Axis Europe have been viscose pulp and kraft paper of very high breaking strength for making twine and woven sacks for farm use. This latter product is called "Spin paper."

During the earlier years of the war, the pulp industry came to the rescue of agriculture and the nation's food supply by making great quantities of "fodder cellulose." This is a soft or overcooked pulp which for two severe winters supplied the farmers with stock feed, filling a great emergency. The need for this material has now passed due to the improved agricultural situation.

The slack war period is being used by the industry to improve its plants and equipment and prepare for postwar trade. No new plant expansion has taken place, but shifts in types of capacity have occurred. New bleaching plants, for example, have been installed increasing the capacity for both bleached sulphate and viscose pulps.

Forced to lie low, the industry is preparing for postwar markets by repairing mills, improving equipment, building large research laboratories and stocking up on pulp so that shipments can be made as soon as the war ends. The mills are well prepared for postwar trade by having large stocks of pulp and also of wood raw material on hand.

The visitor to Sweden is given an immediate introduction to the widespread wartime use of wood by getting in a taxi, at the airport, which is powered by charcoal or wood. Because of the petroleum scarcity, autos, buses and trucks travel on wood or charcoal fuel. Over 80,000 vehicles travel by this means and with no difficulty. Gas stations, instead of selling gas, sell sacks of charcoal or wood which are carried on racks on top of the car. The producer gas equipment for burning the fuel is attached at either the front or rear of the car.

Dr. Jahn was invited to Finland by members of the Finnish Pulp and Paper Associations and spent about a month in that country. The industry there is operating under many severe difficulties due to direct involvement in the war, but under the circumstances, is doing a remarkably good job. Dr. Jahn states that he was very well received by the industry in both Finland and Sweden. A cordial feeling exists in both countries towards their American colleagues.

"I feel that American industry has a great deal to learn from Scandinavian pulp and paper manufacture," Dr. Jahn said, citing as an example, the bleaching methods which give very high grade qualities.

Dr. Jahn spent three months inspecting British mills. Before the war, Britain depended greatly on Scandinavia for pulp. To control available raw material and restrict manufacture to essential products, the British government has set up a Paper Control. The control and industry operate smoothly and the industry is doing a fine job in the face of raw material difficulties.

Dr. Jahn traveled to and from Britain by boat and from Britain to Scandinavia and return by plane.

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▸▸▸ ACCORDING TO RESOURCES MINISTER J. L. Phelps, the building and operation of a government-owned pulp mill is being considered by the Saskatchewan Department of Natural Resources. He said a representative of the department has been in the United States investigating the possibility of buying mill machinery, and a suitable location for the mill was also being considered. Mr. Phelps stated that millions of feet of timber in Saskatchewan forests are now going to waste which could be turned into pulp.

◆

INDUSTRIAL DESIGN TO BE COUPLED WITH NEW USES FOR PAPER

Industrial design and architecture, with a particular slant toward new and profitable uses for paper and paper products is the purpose of a new firm which has just been announced. The members of this organization are Ruth Gerth, nationally known woman industrial designer, George Kosmak, versatile architect, designer of showrooms, offices, homes, etc., and Alexander Kostellow, a specialist in color and manufacturing materials, with a background of product development, factory co-ordination and market research, also head of the Department of Industrial Design at Pratt Institute, Brooklyn.

Speaking of the use of paper in making laminated products, Miss Gerth says, "There is one new process, for instance, in which newspapers or paper pulp can be mixed with plastic and exploded inside of a mold, to make a host of new products of infinitely varied uses, sizes, and shapes. . . . Another example of the plastic-and-paper products of the future is a plastic-veneered paper used extensively by artists, architects and engineers on drafting tables. It is used in our firm's studies because it is so practical and easily cleaned."

Offices of the new firm are at 228 East 61st Street, New York 21, N. Y.

◆

PACIFIC PAPERBOARD EQUIPS NEW BUILDING

A new building has been purchased by the Pacific Paperboard Company, Longview, Washington, to replace its converting plant which was destroyed by fire July 3. The new building is located about two miles from the former location, and hastily obtained machinery has been installed and the plant has started operation.

During the emergency period the company was able to maintain production through the use of equipment made available by the Longview Fibre Company.

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▸▸▸ THE ADOPTION OF a group insurance program was announced by the Fletcher Paper Company, Alpena, Michigan. The plan provides hospitalization and visiting nurse care for employees and dependents.

◆

S. F. M. MACLAREN HEADS NEW COMPANY

Announcement is made of the formation of a new company to be known as Regent Pulp and Chemical Company. The new company now has offices at 52 Vanderbilt Avenue, New York 17, New York; Phone, Murray Hill 6-7330. It will conduct a business as manufacturers agent and distributor of pulp and chemicals.

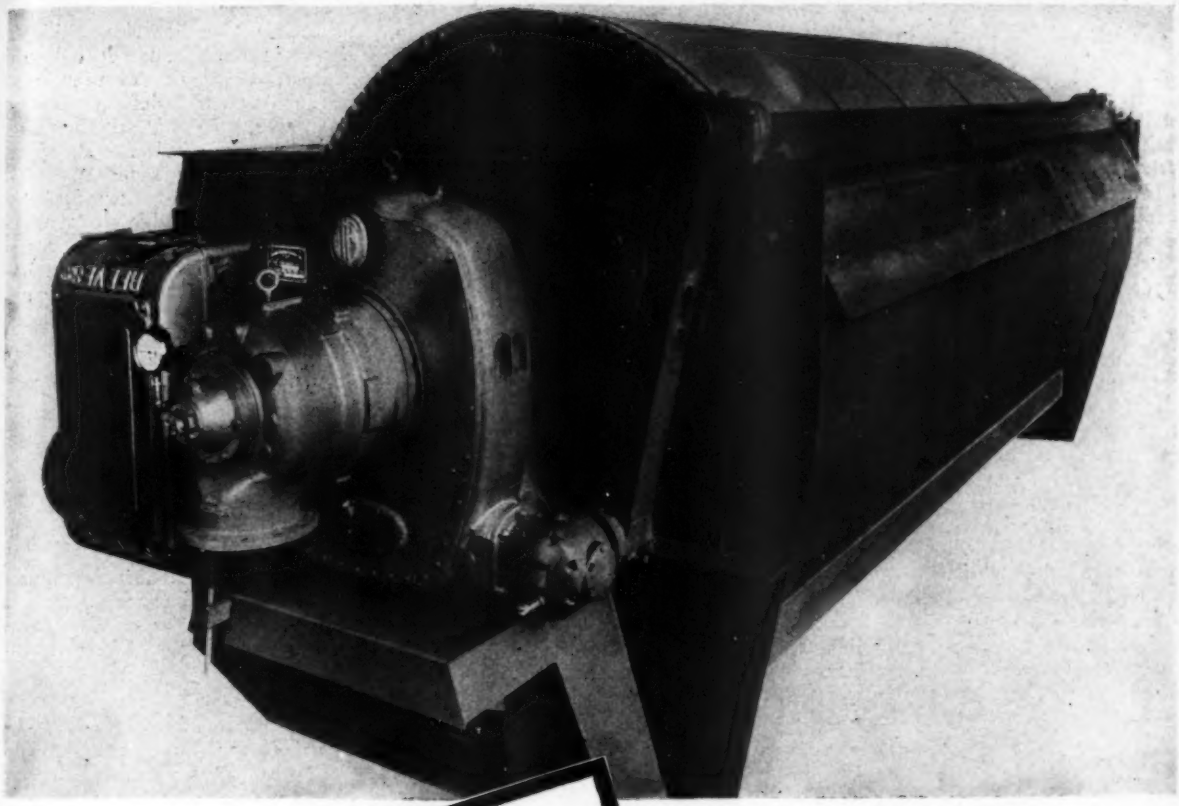
Heading the company as president is S. F. M. Maclaren, who is a member of TAPPI, the American Chemical Society, and the American Institute of Chemical Engineers.

◆

LIGHTWEIGHT WRITING PAPER FROM FLAX FIBER DEVELOPED BY ECUSTA

Out of the shortages and needs of wartime, has developed a new superfine, superthin writing paper made from the same flax fiber used in the manufacture of high grade cigarette paper.

This new paper, a large portion of which is being purchased by the Government for military use, was developed and is being produced on a large scale by the Ecusta Paper Corporation at Pisgah Forest, North Carolina. This group of papers includes manifold, air mail, pigeon mail, carbonizing and other lightweight text



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BALL AND ROLLER BEARINGS

Long life under continuous service is what Oliver engineers wanted in the bearings on this rugged Worm Gear Paper Filter Drive, which is equally suitable for both slow and high cylinder speeds.

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Long life—plus the ability to take any combination of radial and thrust loads . . . and carefree performance with lubrication needed only occasionally.

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papers. A condenser tissue used in the insulation of electrical equipment in war industries is also being manufactured from the same raw material, and research specialists are experimenting with still other contemplated products.

Harry H. Straus, president of Ecusta corporation says, "When the supply of wood pulp, wastepaper, and other materials from which many paper products are made became so critical, we started work on developing ways and means of making a new line of fine, thin papers out of flax straw.

"Within a short time we perfected manufacturing processes and are making these papers in rather large quantities, thereby saving that much more pulpwood for manufacture of ammunition containers and other paper products necessary to keep the boys overseas supplied with food, ammunition and fighting equipment.

"Fine quality writing papers have always been made in heavy, bulky weights, but now beautiful lightweight papers, which have a superior texture and a fineness such as only papers made from flax fiber can have, soon will be available for the buyers of quality writing paper."

The Army is using this new paper for sending messages by carrier pigeons, for printing Bibles in small volumes, and for extremely light carbon paper which will make more copies at one typing than ordinary weight carbon papers.

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▶▶▶ THE ACQUISITION OF the Mid-States Gummed Paper Company of Chicago by the Minnesota Mining & Manufacturing Company, St. Paul, Minnesota, was announced on October 9. It was reported that the purchase price was in the neighborhood of $1,000,000.

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MENASHA PRODS. DIV. NAME IS CHANGED TO MARATHON CORP.

The Menasha Products Company (Menasha, Wisconsin), sales division of Marathon Corporation since 1927, has announced a change of name to Marathon Corporation. The company manufactures packages and packaging materials for the paper jobber industry.

The change, according to Marathon officials, is being made at this time to provide uniform identification for the various manufacturing plants and the varied manufacturing activities of Marathon Corporation.

"We believe that the change will eliminate some confusion for customers and suppliers of Marathon," said Leo E. Croy, Marathon vice president. "The new name is being adopted now when our company's expansion program for post-war is definitely underway. Marathon is leasing and building several new plants, including a modern bleached sulphate pulp mill at Peninsula, Ontario, Canada, now under construction, as units of this program. It is highly desirable that all our manufacturing operations and sales activities be uniformly identified by a single name and this change accomplishes that."

Certain finished products of the company which now carry the "Menasha" trade name, will in the future be called Marathon products. No change is contemplated in personnel, products or sales policies of the organization. The change is aimed solely to simplify and make uniform the corporate and trade names of the organization.

Marathon products include a number of widely known specialties. Among them are: Kabnet Wax, Savarap, Freeztex Packages, Compact and Tux napkins.

◆

▶▶▶ A RECENT ANNOUNCEMENT of the Wartime Prices and Trade Board states that Canada will be able to maintain the current rate of shipments of newsprint (200,000 tons per month) and of wood pulp (1,100,000 tons a year) to the United States during the fourth quarter of 1944. Although severe drought conditions in various pulp and paper producing areas of Canada resulted in the inability of certain mills to obtain full delivery of wood in time for its use during the coming winter months, this deficiency has been somewhat offset by the fact that production of new wood during the season ended May 31, 1944, exceeded the originally anticipated new supply.

◆

NELSON SPENCER CO. NAMED SALES AGENTS FOR SORG PULP CO.

An announcement from the Sorg Pulp Company at Middletown, Ohio, names Nelson Spencer Company, Limited, as sales agents as well as sawmill supervisors for the Sorg plant at Port Mellon, British Columbia, which makes kraft paper.

Under an arrangement completed some time ago, the Nelson Spencer Company handled Port Mellon logs suitable for lumber, while pulp logs were turned into the sawmill. Additional equipment was installed at Port Mellon and efficient utilization is made of all logs brought to the mill. W. C. Simson is logging superintendent.

Many maintenance men, construction engineers, or chemists are called upon to solve problems in maintenance lay-outs that require special information to correct deterioration of tanks, troughs, ceilings, side walls, or other portions of the plant. Call upon us to furnish information on the use of Cypress. Many times, stubborn conditions can be corrected by the use of proper materials, the right grade, and the correct installation. Let us help you as we have done in the past for many industrial plants whose problems have been most perplexing.

On large tank installations, we recommend that you see your local tank builders for suggestions on installation. On troughs or small knock-down tank requirements, we will gladly furnish you prices. Write for details.

TIDEWATER Red Cypress

Can Be Furnished Promptly from St. Louis Stock

FLEISHEL LUMBER COMPANY

4235 DUNCAN AVE. • ST. LOUIS 10, MISSOURI • NEwstead 2100

for

Breast Rolls — Wire Rolls

Couch Rolls (Plain-Grooved)

Press Rolls — Press Felt Rolls

Smooth Press Rolls — Dryers

Breaker Rolls — Calender Rolls

Reel Drums

•

Supercalender Rolls
(Chilled Iron, Paper, Cotton)

•

Creping (Wet-Dry) Cutting-off Doctors

Cleaning Doctors — Yankee Dryer Doctors

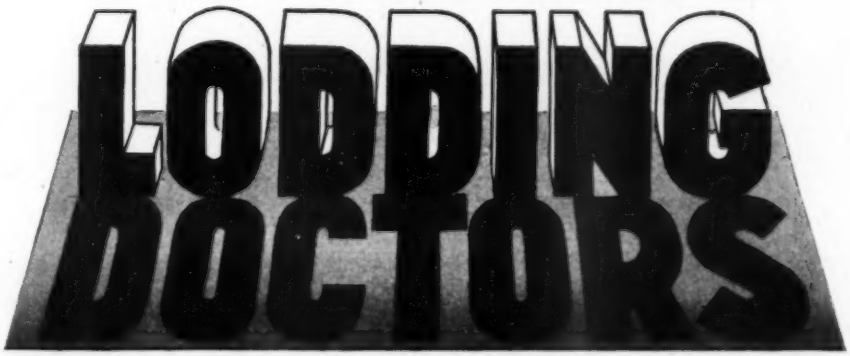
•

Stack Dryers

•

Saturating Rolls

FLOATING BLADE



New Machine buyers are specifying *Lodding Doctors* as original equipment

LODDING ENGINEERING CORPORATION

WORCESTER, MASSACHUSETTS, U. S. A.

Represented outside of New England by

W. E. GREENE CORPORATION

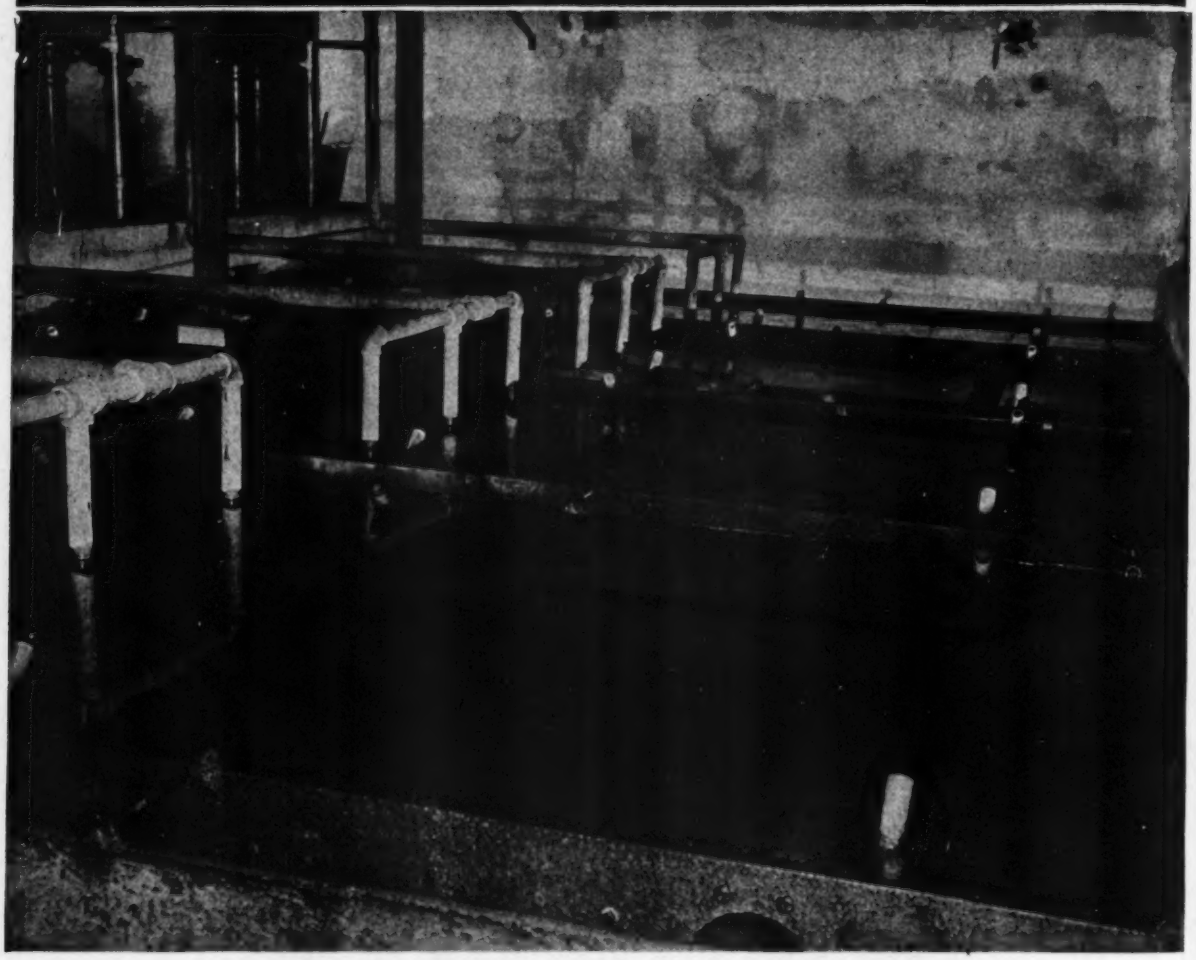
Woolworth Building NEW YORK

PULP and PAPER MILL ACCESSORIES, Ltd., 2023 Aylmer Street, MONTREAL, QUEBEC

How to Get Better Process Water

DEPEND ON NORWOOD FILTERS

to Give You Better Process Water NOW



Part of the Norwood Filter beds which have been used for years by Strathmore.

YOU can depend on Norwood Filters to give you clearer process water to help produce a better sheet, for these filters have been perfected over a period of fifty years and have many outstanding advantages. You can get the benefits of Norwood's advantages now by having them built into your filters when necessary repairs are made. Or you can get new equipment or complete new installations sooner after the war if you order now and arrange for early delivery.

Let Norwood's Engineering Service Department work with you on your present water problems or on your postwar equipment plans. Write today.

Send For Engineering Data Units

We have helpful Engineering Data Units covering Norwood Equipment. Send for your set today.

Filters: Ask for Portfolio F for a complete set of data units on Norwood Water Filters.

Calenders: Ask for Portfolio C for a complete set of data units on Norwood Calenders.

Get a Good Start And a Good Finish With

NORWOOD

WATER FILTERS AND PAPER FINISHING MACHINERY

The Norwood Engineering Company

16 No. Maple St., Florence, Mass.

Life *for* Sale

WELDCO
Covered Rolls

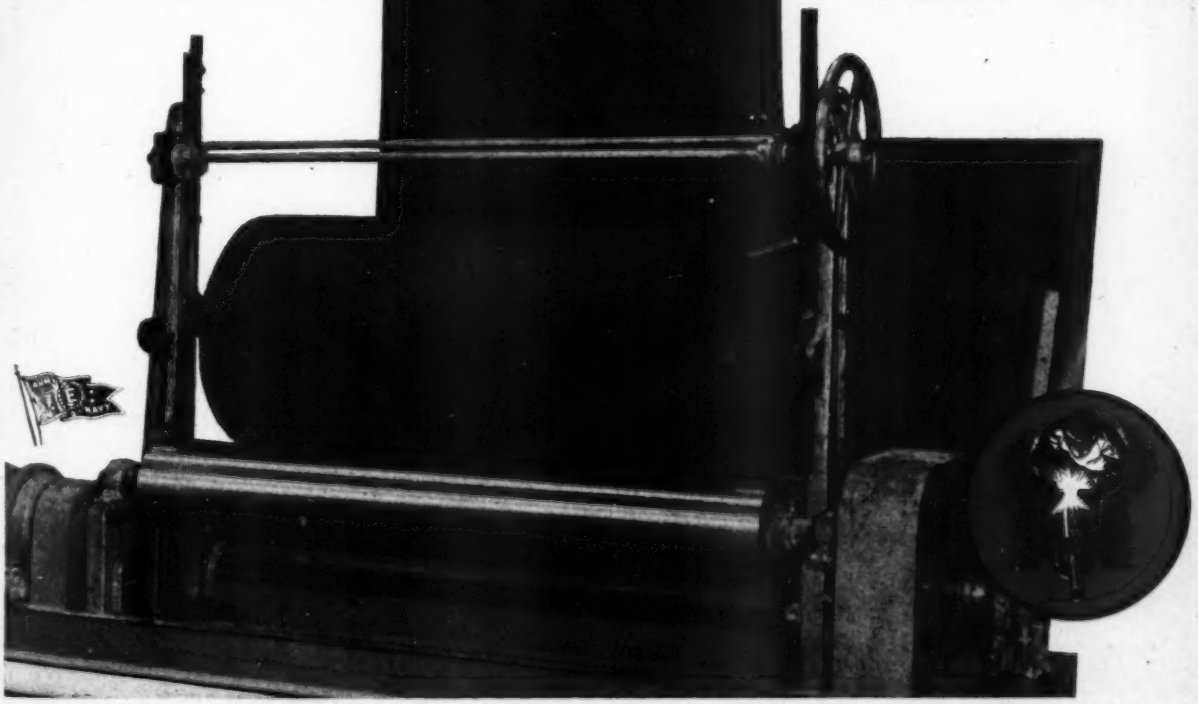
You can start your post-war economy now by more than doubling the life of the cores of your present and discarded rolls. They can be recovered by the patented WELDCO process of welding under pressure. By recovering old cores, you save the cost of new cores.

Picture below—Winding head lining material as it comes from the die padder and eight box washer unit. Two Monel Covered Rolls, 10" diameter x 70¾" face.

Longer Life
Less Maintenance

Cast iron, brass, and bronze cores in a full range of diameters may be covered with Monel, stainless steel, or any weldable material you wish. A tight, permanent, uniform cover is assured. Thousands of Weldco covered rolls are in service, giving the LONGEST, MOST ECONOMICAL service. Write today.

The
YOUNGSTOWN
WELDING & ENGINEERING CO.
3752 OAKWOOD AVE. YOUNGSTOWN, OHIO



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MAXIMUM
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OPACITY

R. T. VANDERBILT CO., Inc.
230 Park Avenue, New York City

. . . Editorial . . . . . .

Paper—A Future Problem

▶▶▶ THE SERIES OF successful operations of the Allies on the western front in Europe, presaging the effective winding up of the German resistance at an early date, has loosed speculations by industrial operators in the United States as to how soon the restrictions placed upon industry by the Government can be unwound.

We don't know how severely the problems of raw materials, finished products, and price controls, handicap industry in general. They are bad enough, judging by the squawks we have heard. But the paper industry, so far as we can ascertain, is the most regimented of any industry in America.

Because the paper industry is the most regimented of any industry is one of the reasons why it has so many industrial problems.

And the pity of the situation is that both the administration at Washington and the rank and file of the paper industry know what the problems are —but don't know what to do about them.

There is the problem of pulp control. Will pulp allocation order M-93 be rescinded immediately upon the cessation of hostilities in Europe? A large segment of the industry thinks it will or that it will be modified at once. We think not. If M-93 were rescinded immediately, a flock of mills might go out of business immediately.

We can foresee that the bulk of the mills in the industry may desire that M-93 be retained indefinitely or until the matter of raw material supplies be made clearer and surer than they are today.

The question of adequate pulpwood supply turns upon manpower shortage. Manpower shortage in the woods will not be solved until demobilization is heavy and the matter of wages for woodsmen are put up to an incentive earning basis.

Not only will order M-93 not be rescinded, but there will be no easement of the pulp control for a long time to come. The Government has the only setup and organization that can bring any semblance of order in the paper industry. And if it relinquishes control, chaos would rule, because the industry has no setup of its own to direct its operations for the good of the industry and the good of the public.

Then, another grave problem is what will the OPA do? It would be folly to ease the control of paper without at the same time rescinding the OPA price ceilings. If the OPA price ceilings were removed, prices of paper would skyrocket bringing ultimate harm to the public and to the paper industry. Another problem that has been under consideration is, what of the inventories of paper which the Government has on hand and might throw onto the market at the end of hostilities? We do not attach much importance to that feature because of the terrific shortage of all kinds of paper and board all over the world and in view of the tremendous accumulated demand for paper from all over the world.

The problems of rehabilitation will require more paper and for a longer duration than the war did. The world needs paper products particularly. The world has but one place to get essential paper products and that is America. It is estimated that the potential yearly demand for paper aggregates is some twenty-two million tons. Against that, we have the 1941 production of 17,762,365 tons which is the highest record tonnage ever produced. Since then, the production has steadily declined.

We are faced with this condition—the steadily increasing demand for paper products and the static production situation. We cannot see now when the supply of paper products will be sufficient to equal the demand in the face of the present world situation.

Postwar Reconversion

▶▶▶ THE PULP AND PAPER manufacturing industry, unlike some other major industries, did not have to re-tool to do its part in the war effort. Rather, it has continued to make products for which it was created.

With the breaking out of the War, to be sure, the industry was brought face to face with certain problems. It was called upon to produce papers for war purposes with specifications so demanding that the best of talent within and without the industry was needed to solve them. What has been accomplished in this direction is little short of miraculous.

Likewise, there have been labor shortages, priorities, and numerous other irritations for the industry to meet. In some instances, it has been necessary for certain mills to shift grades, even to use paper machines for pulp drying. All such changes have been made as a matter of expediency in the better prosecution of the War.

Even with this shifting of grades, and the use of paper machines for pulp drying, the machinery that was used for producing pulp and paper previous to the War and that is being used now for these purposes, barring complete obsolescence, will be ready for making such grades of pulp and paper as may be decided by individual mill managements when the War is over.

Many mills, of course, will have to make some plant changes, possibly some rather extensive ones, to get back to prewar status. Other mills will be able to go along just as they are today. Still other mills have been planning to improve and increase plant facilities, and/or for improving quality, and possibly of extending lines.

Behind everything that is being planned and will be done is the desire of the individual mill organization to meet competition. No one can doubt that competition in some grades will be severe. The mill organization that is on its toes now, all other things being equal, will be better able to meet the problems of tomorrow—both production and merchandising.

Current Thought

WILLIAM SIBLEY

Give the Generals a Chance

▶▶▶ SUPPOSE JIM HILL, who drove his Great Northern Railway through the great north country, had hired a bunch of untrained college professors and bank presidents to be his engineers, firemen, and dispatchers. If he had done that, he would have been a candidate for the booby hatch. Indeed, had he done so, he would have failed ultimately; his property would have become known as "Hill's Folly."

That's what happened after World War I. After 52 months of savage warfare, the peace terms were decided upon, and the map of Europe cut up like a jigsaw puzzle, by Wilson, Clemenceau, Orlando, and Lloyd George. Not a military man was present. There you had a quartette of college professors and "statesmen" becoming engineers, firemen, and dispatchers. And their failure is well known to all.

The world is right now facing another job of treating a peace. And while statesmen are a prime essential in the formulations of treaties, and Parliaments and Congresses are necessary for their ratification, no armistice terms or Peace Treaty should be conducted without the help and counsel of military leaders.

Right along this line of thinking, Major General Parker, in a recent issue of the *New York Times*, quoted Marshal Foch's warning to the United States which he voiced before the American Legion Convention during his visit to the United States during 1921. The worthy Marshal's words of twenty-three years ago apply equally as forceful today. They were:

"As I greet you and must soon say farewell to this nation which has received me with such abundant hospitality and generous affection, and as I look back over our common battlefields from Yorktown to the Argonne-Meuse, I feel that I must leave with you certain advice and certain definite warning as a legacy which I earnestly ask that you accept and remember.

"When the World War ended on Nov. 11, 1918, the Allies sent their representatives to Versailles, France, and in 1919 the Treaty of Versailles was signed. The United States did not sign with the other Allies.

"It is to be noted and remembered that the Allies did not have one representative of the field forces at that peace table where the decisions were made for turning the Allied victory to the best advantage. The men who on the land, on the sea and in the air had fallen by millions to achieve that victory had not one comrade at that table to speak for that honorable company whose greater suffering and sacrifice, in all justice, deserved that recognition.

"The armed forces are the nation in arms, and as such are entitled to representation in any international conference whose business is to adjust the results of their victory by the international agreement of the victors.

"Moreover, among men who have served together upon the battlefield there is always a certain spirit of comradeship and conciliation whether they belong to the forces of the same or of different nations. Surely, such men, who have known and solved the problems of the battlefield successfully, would be useful in the international conversion from war to peace and in the maintenance of that peace which will, beyond doubt, depend upon the character of the post-war international settlement.

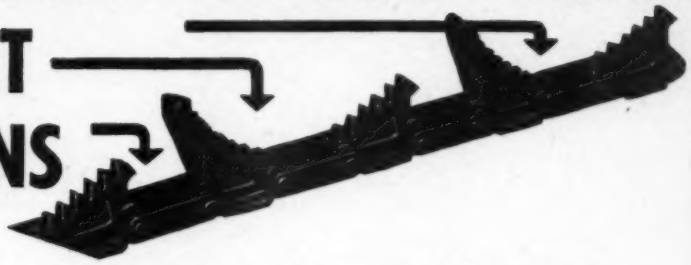
"And so the Versailles conference met and produced the Treaty of Versailles, and the Allied nations then went their separate ways, each to its own country, to attend each to its own business; and the Allied team whose full power was needed to defeat Germany in 1918, was dissolved, leaving this treaty unsupported by the physical power necessary to its enforcement.

"If the Allies continue their present indifference, both in their own national defense and in their relations with each other, the severities and inconsistencies of this Treaty of Versailles will surely within the next quarter century produce another world war, for Germany will surely rise in arms again unless confronted by superior force.

"This is the simple statement of the situation as I see it.

"I give you solemn warning that under the present trend, the next world war is inevitable, that it will come within the next quarter century, and that it may end in a manner very different from that of the war of 1914-1918."

Continuous Slasher-Table Performance Assured with LINK-BELT SLASHER CHAINS



This Link-Belt 5-in. pitch SM-592 conveyor chain, for feeding logs broadside against the rotating circular saws that slash them into shorter lengths, has been especially designed for the rigorous service of pulpwood slasher tables. Throughout its length, each chain is assembled in this sequence—one plain outer link, one 5⅛" high H-1 malleable iron center link, one plain outer link, one 8¼" high H-2 malleable iron center link, thus forming log-supporting cradles on 20" centers. The plain outer links are made-up with two high carbon steel side bars. Serrations on malleable center links help to hold the logs firmly in position. All joints are formed with heat treated, copper bearing steel rivets. Let experienced Link-Belt engineers help you solve your materials handling and power transmission problems. There is a Link-Belt chain for every service.

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Toronto 8.
Offices, Factory Branch Stores and distributors in principal cities.

Slasher table in wood room of a modern pulp & paper mill equipped with 14 strands of Link-Belt 5-in. pitch SM-592 conveyor chain.

OTHER LINK-BELT PRODUCTS INCLUDE

Chains and Attachments of all types — Malleable Iron, Promal and Steel . . . Log Hauls . . . Slasher Table Chains . . . Sorting Table Conveyors . . . Log Stackers . . . Hogged Fuel Handling Equipment . . . Elevators and Conveyors of all types . . . Vibrating Screens . . . Car Spotters . . . Paper Roll Handling Equipment . . . Silent and Roller Chain Drives . . . Variable Speed Changers . . . Speed Reducers . . . Sprockets . . . Gears . . . Pulleys . . . Couplings . . . Clutches . . . Ball, Roller and Babbitted Bearing Units . . . Base Plates, etc. Send for Catalogs.

LINK-BELT

CHAINS AND SPROCKETS

for conveyors • for drives • for power transmission

But it's the cost of too-heavy pipe that really hurts!

Of course it doesn't surprise anyone to find that light-wall pipe costs less than heavy-wall pipe . . . less to buy, less to ship, less to support, and less to erect. But it does seem to surprise some people to find that there is a way to make light-wall pipe strong enough to do most of the jobs that are ordinarily assigned to far heavier and more costly pipe.

Spiral construction accomplishes this. The spiral seam in Taylor Spiral Pipe makes it the strongest type of pipe of its weight . . . gives it the strength and durability needed to handle the type of services listed below—the kind of applications for which Standard Thickness pipe is customarily used.

And "customarily" is the word for this, too. Unquestionably the use of Standard Thickness pipe for the ordinary run of moderate and low pressure service is simply a matter of lugging along an old custom. The service is the everyday kind, so it's easier to order just everyday pipe of so-and-so size than to *select* the pipe on a basis of rated and proved ability to handle the job at lowest cost.

Those who have broken away from this custom have found that Taylor Spiral Pipe can handle a large percentage of their piping needs . . . handle them in many cases at an installed cost way down to half that of the heavier pipe it so adequately replaces.

Changing to Taylor Spiral Pipe for services like those listed below is made easy by the complete range of sizes and wide variety of fittings. Thicknesses range from 18 to 6 gauge; sizes from 4" to 42"; joint lengths up to 40 ft. All types of end joints and couplings, all kinds of fittings and specials or fabricated assemblies, are produced by Taylor Forge, assuring a complete service and undivided responsibility.

TAYLOR FORGE & PIPE WORKS

General Offices & Works: Chicago, P. O. Box 485 ★ New York Office: 50 Church St. ★ Philadelphia Office: Broad Street Station Bldg.

TAYLOR SPIRAL PIPE

CHANGE TO TAYLOR SPIRAL PIPE FOR:

- High and Low Pressure Water Lines
- Low Pressure Steam and Air Lines
- Steam and Diesel Exhaust Lines
- Vacuum and Suction Lines
- Blower Piping
- White Water Lines
- Pulp Stock Lines
- Paper Stock Lines
- Alkaline Lines
- Size Lines
- Swing Pipe
- Spray Pond Piping

LOOKING AHEAD?

Of course you are. You're looking ahead to Victory Day... looking beyond that to the peace which will follow... planning now to take full advantage of your post-war opportunities.

We're ready to work with you in developing any new uses for starches which are part of your post-war plans.

Stein-Hall Paper Laboratories and Technical Field Staff are backed by 78 years of experience in developing and supplying high quality starches, gums and dextrines for sizing, calendering, coating and adhesive purposes.

That experience is at your service—and at no obligation to you.

So count us in on your post-war plans. Whatever your problem, share it with us . . . we'll work it out together.

78 YEARS OF STARCH SERVICE

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2641 SOUTH ASHLAND AVENUE • CHICAGO 8, ILL.
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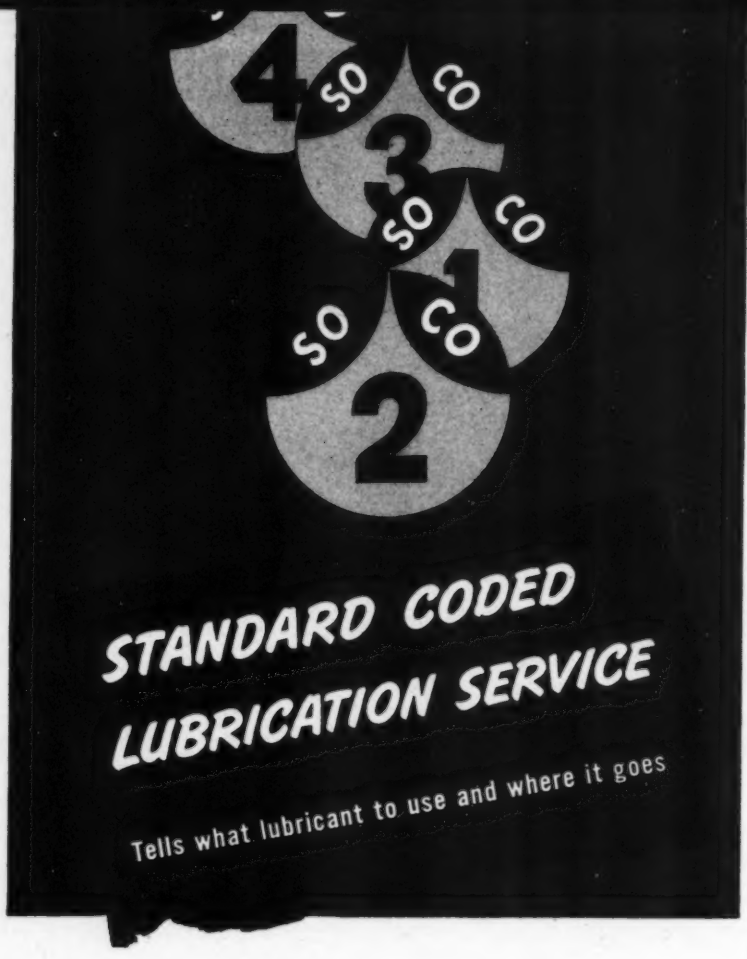
ING...LUBRICATION ENGINEERING...LUBRICATION ENGINEERING...LUBRICATION ENGINEERING...LUBR



Not a minute of extra "record keeping"

MANY SYSTEMS for saving time and labor require so much clerical work and record keeping that the "cure" they offer is often worse than the "ill." This is not true of Standard's Coded Lubrication Service. Once installed, this system requires no record keeping. It automatically tells your oilers *where* lubricant is needed and *what* lubricant to use on every spot to be lubricated in your plant.

These three simple steps, described at right, show how easy it is to apply this system or adapt it to your present plan.

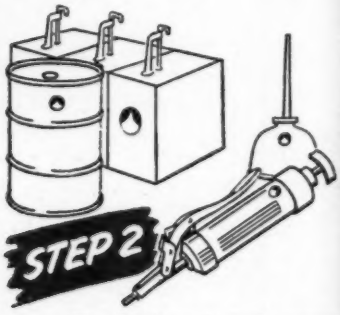
With this system installed, oiler crews simply fill their grease guns, oil cans, or other dispensing equipment with the right lubricant, by number, and apply it to the machines by number. In addition, if you feel that it is necessary to tell the oiler *how much* lubricant is needed, and *how often* to apply it, machine record cards are available on which this information can be entered. The most important problem, however, of getting the *right lubricant* in the *right place* every time is solved in the three simple steps outlined.

A Standard Oil Industrial Service Representative will be glad to show you samples of the decals and the lubrication chart. He will be glad to talk with you or your men in charge of lubrication about putting this system to work in your plant. Call the nearest Standard Oil Company (Indiana) office, or write 910 South Michigan Avenue, Chicago 80, Illinois, for a Representative. In Nebraska, write Standard Oil Company of Nebraska at Omaha 2.

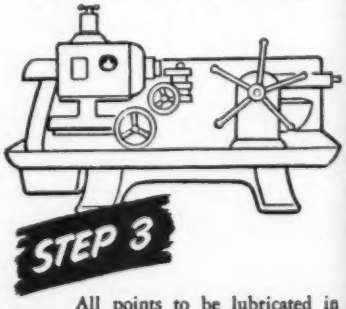
Gasoline Powers the Attack... Don't Waste a Drop!

How Standard Coded Lubrication Service is applied

Each lubricant used in your plant is assigned a number. These numbers are recorded on a lubrication chart—this is the only record making that is ever needed—and copies are kept in the oil room, purchasing department files, or wherever else they may be useful.

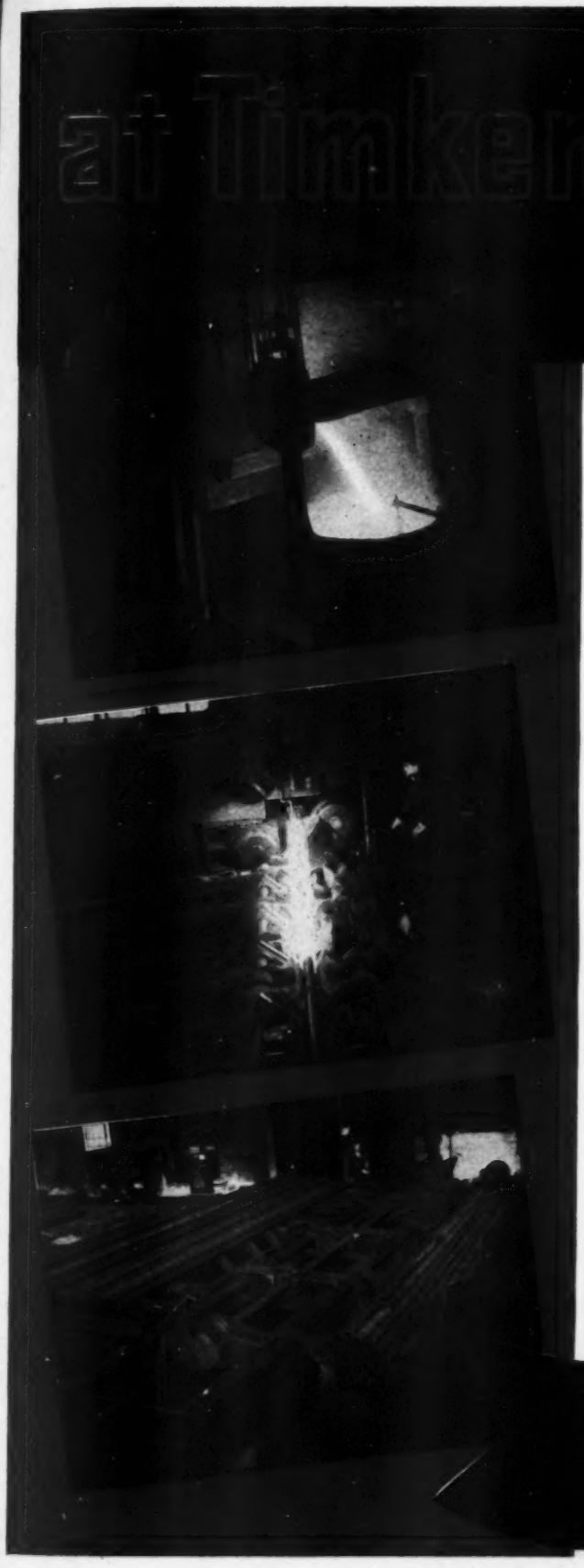


The lubricant in each storage container—barrel, drum or dispenser—is identified by the number assigned to it. Numbered decals, in two color combinations, are used for this purpose—another example of the simplicity of the system.



All points to be lubricated in your plant are also marked with a numbered decal indicating *what* lubricant is to be used, and *where* it is needed.

STANDARD OIL COMPANY (INDIANA) STANDARD SERVICE



at Timken

evaporator tube quality is guarded from Melt Shop to finished product

Many leading paper mill operators have found that the most economical way to increase tube life in black liquor evaporators is to install Timken Seamless Tubes in their evaporators.

These tubes are made in alloy and stainless steel grades. As a consequence, no matter how exacting your individual requirements may be, you are sure to find a Timken Tube to meet them.

The quality of Timken Seamless Tubes is maintained by precise and exact manufacturing practices that are under the control of one closely knit organization from the giant electric or open hearth furnaces, through the tube mill, and until each tube is inspected and certified "O.K." for shipment.

The technical organization of the Timken Company have made a special study of the conditions of corrosion at normal and elevated temperatures. The conclusions of these studies have resulted in steels that have been used to solve many of the most difficult corrosion problems mill operators have to face. For information write the Steel and Tube Division of The Timken Roller Bearing Company, Canton 6, Ohio.

TIMKEN

TRADE MARK REG. U.S. PAT. OFF.

SEAMLESS STEEL TUBES

Ryertex Better for Forming Boards

No size limitations.

Won't warp, split or crack.

Lasts longer.

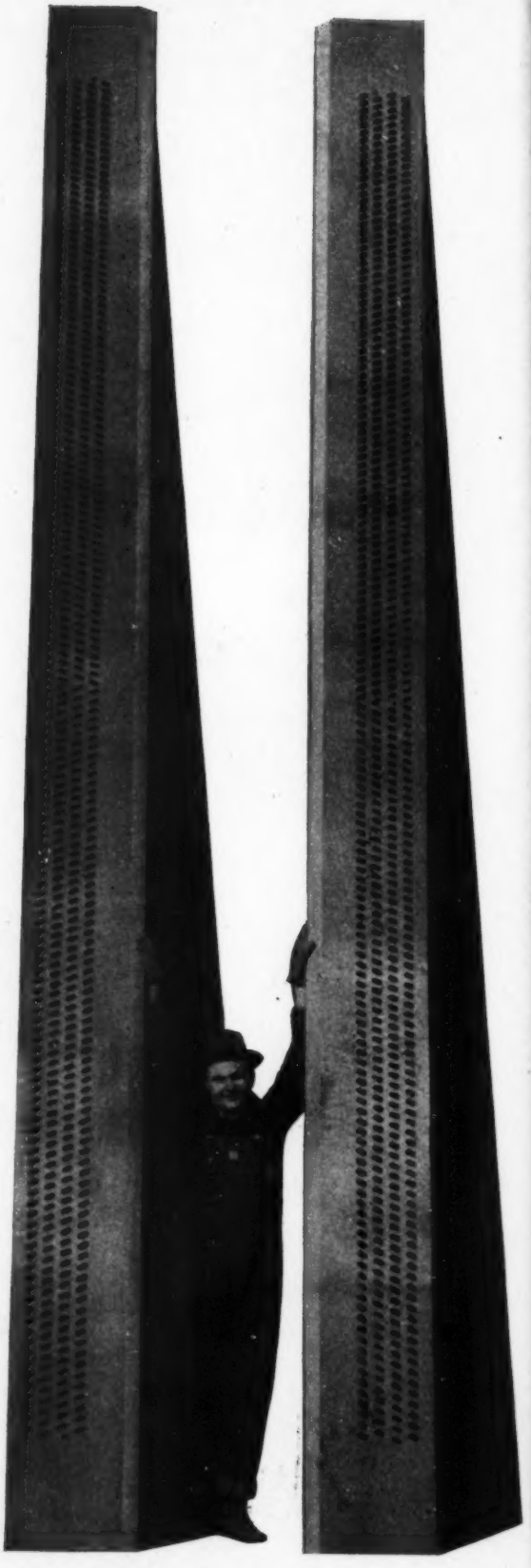
Stronger than wood or rubber.

Easily resurfaced.

The design of these forming boards, recently furnished to the Maine Seaboard Paper Company, at Bucksport, Me., called for an unusual material. Each board is 1" thick, 18" wide and 255" long. Each is punched with 604 slots and has a 2" bevel.

Ryertex was selected for the job because this laminated resin and textile composition has great strength and, with water lubrication, possesses an unusually low coefficient of friction. Complete uniformity and freedom from any tendency to warp or splinter were other important reasons for using Ryertex.

For more efficient operation in your mill use Ryertex for forming boards—for suction box covers; doctor blades; bearings on press rolls, calender stacks, beaters, jordans, grinders, bleachers, jack ladders, etc. Ryertex will do a better job. Send for detailed information.



RYERTEX

A product of **JOSEPH T. RYERSON & SON, INC.,** Chicago and Jersey City

Pulpwood Cutting *in the Appalachian Region*

C. F. WINSLOW, Regional Representative
War Production Board

▸▸▸ THE TREES IN THE APPALACHIAN Region are predominantly broad-leaved. This is a region of mountains and steep hills. The territory referred to in this article may be found by starting from central Pennsylvania, drawing a line south, taking in North Carolina and Tennessee, then west from the Atlantic Ocean to include Ohio, with the exception of the eastern portions of Virginia and North Carolina, which are ordinarily classified as belonging to the southern region. In other words, Maryland, Delaware, West Virginia, Tennessee, Kentucky, and Ohio are included in their entirety and parts of Pennsylvania, Virginia, and North Carolina.

Seven companies operate sixteen pulp mills in this territory.

The soda and sulphite methods of making pulp are generally used and in normal times these mills produce bond and writing, government post card, mimeograph, tag, bottle cap, coated paper, and magazine papers.

Some sulphate pulp is produced which goes into various kinds of kraft paper. In addition some of the mills make paper from spent chestnut chips from which the tannic acid has been extracted.

It is no secret that these mills have largely switched their production of pulp and paper to those kinds needed by the military as well as the essential civilian uses. However, for security reasons exact tonnage cannot be disclosed. It should suffice, however, to point out that 700,000 different items shipped overseas to our fighting men are wrapped in paper. Some of the more important items manufactured are blood plasma containers, "V" boxes, and shell, butter, lard, and milk containers. Some wood pulp is diverted for manufacture into smokeless powder and it is said that one cord of pulpwood will make sufficient pulp to manufacture 90,000 rounds for a Garand rifle.

During the past three years, average consumption of pulpwood in this territory has been 1,377,813 cords per year. Since under present methods of manufacture, one cord of pulpwood will make 1,400 pounds of pulp, average annual pulp production is about 964,469 tons. This amount of pulp would be sufficient to manufacture 1,157,363 tons of paper.

Average yearly receipts of pulpwood during the period from January, 1941, to December, 1943, inclusive, was 1,320,056 cords. Thus, it can be seen inventory fell off at the average rate of 57,757 cords per year during this period. Month end inventories for these mills were at a high of 456,613 cords in September, 1942, and reached a low of 200,435 cords in July, 1943. On July 1, of this year, inventories totaled 319,633 cords and the wood situation at most of these mills appears to be improving each month.

W. R. Gingerich, wood department chief, Luke, Md., mill of West Virginia Pulp & Paper Co., has had about 40 years' experience buying pulpwood for the company. He is holding a log lifter which is a new but efficient tool. It is an improvement over the old cant hook since it raises the log several inches off the ground thus making possible sawing without pinching, and aids in keeping the saw out of the dirt.

Probably the greatest single factor tending to maintain wood inventories in this region in the face of declining inventories in most other sections is farmer production. Company woods operations never were important and farmer production always has made up practically all of the cut. Therefore, when employment agencies sent their representatives into this section to recruit labor for munition plants and ship yards, the percentage of pulpwood workers recruited wasn't nearly as great as in many other forest areas. There are about 38,000 people who cut pulpwood in this region and their average individual yearly production would be about 30 cords. Because of his small yearly production, the pulpwood cutter must look to other work to gain his living. This work in most cases consists of farming. "I cuts pulpwood during my slack time," is a common expression in these parts. On days unsuited for farming operations these men go into their woodlots or those of their neighbors to cut pulpwood.

Since these operations are small, it stands to reason that only simple equipment is economical. On most operations ordinary crosscut saws, axes, and wedges are used to fell, limb, and buck-up the trees into five-foot pulpwood bolts. It has been found that where the saws are properly set and sharpened, cutting is satisfactory regardless of the type used. This isn't meant to imply that certain types aren't more satisfactory than others, but merely that any standard type saw in good working condition will do a good job. One of the most popular types of crosscut saws con-

***ABOVE**—Timber on the Armstrong Forest Company land which will go to the New York and Pennsylvania Co. plant at Lock Haven, Pa. Note pine logs were cut year before and peeled by bugs working under the bark. At least $2.00 per 160 cu. ft. unit is saved by this practice but operator takes a chance on logs rotting if he is delayed, or forest fires may destroy timber. Note Lowther power saw in operation. The improvised saw horse keeps saw sharp longer by keeping it out of the dirt.*

***CENTER**—Wood yard of West Virginia Pulp and Paper Co., Luke, Md. Eleven piles of pulpwood—rough, peeled, hardwood, softwood—"37,000 cords of pulpwood."*

***BELOW**—Tom Linkswiler (91 years old) has earned $120 so far this year cutting 10 units of pulpwood, delivered to West Virginia Pulp and Paper Co., Covington, Va. He plans to cut 5 more units this year. He cuts from the 50 acres of timberland on his 100 acre farm.*

sists of a block of two cutting teeth between the raker teeth, rather than a block of four cutting teeth.

Some paper companies have introduced bow saws with the frame of tubular steel. This saw has proved extremely useful when kept in proper condition and where the user has taken the trouble to learn how to use the saw properly. However, most cutters do not give this saw a fair trial before abandoning it. For the most part the single bit axe is preferred to the double bit.

Recently a new style cant hook has been introduced which gives promise of wide use. This hook is conventional except that a broad metal strap is fastened to the base which enables the user to lift the log several inches above the ground. Through proper use, logs can be quickly placed in position for quick sawing without pinching. This is a vast improvement over the old method of blocking up logs largely by brute strength.

Where the ground is sufficiently level to permit trucks to run into the woods, standard procedure is to get the truck up to the fallen trees and load directly into the truck. This method is fast and economical, but is hard on truck tires which are becoming more difficult to secure each day.

Where the ground is too rough to permit putting the truck into the woods, the trees are skidded out to the road side before bucking up into five-foot bolts. Both horses and tractors are used on skidding operations, the choice apparently being based on the motive power the operator has available. The crawler type of tractor is preferred and generally it is about thirty horsepower. Most of these tractors are equipped with a winch. In those localities where long steep down grades are found it is common practice to clear cut strips of timber

from the top to the bottom of the hill and roll the logs down. The logs are then cut into five-foot bolts and loaded onto trucks. On such operations it isn't uncommon today to find power saws of the chain or wheelbarrow mount types. The Disston-Mercury Chain Saw and the Kut-Kwick and Lowther circular saws mounted like a wheelbarrow are popular on these operations.

There are a wide variety of trucks used to haul pulpwood in the Appalachian Region, a survey disclosing that 3,508 separate trucks were used during 1943. Obviously, many of these trucks hauled very little wood and spent most of the time hauling farm produce. However, small scattered operations require a large number of trucks. The most popular types of trucks are of medium weight classification (9,000-16,000 gross vehicle weight) such as ton and one-half Fords, Chevrolets, and K-5 Internationals. Special bodies are mounted on these chassis in order that from 1½-2 cords of short wood can be conveniently moved. Most of the wood is cut within 15 miles of a rail siding as long hauls are unprofitable. At least 75 per cent of the pulpwood cut in this region moves to the mill in box cars, the bulk of the trucks hauling from the woods to the railsiding rather than hauling directly to the mill. This practice has been a great factor in conserving trucks, tires, and gasoline.

The standard wood measure is the unit of 160 cubic feet. The wood is cut five feet long. Most of the mills prefer peeled wood but due to the labor shortage, have been willing to accept rough wood if it was prepared during the winter. The mills try to get as much peeled wood production as possible during the peeling season.

***ABOVE**—I. J. Clayton (83 years old) being paid for cutting pulpwood by John H. Sandy, contractor for West Virginia Pulp and Paper Co., Luke, Md., pulp mill. Mr. Clayton earned $297 cutting 33 units of pulpwood this past year along with working several gardens. Note the Sandvik one-man bow saw hung from the wood which he uses to saw small wood.*

***CENTER**—This picture shows how I. J. Clayton (shown above) works. Note pine tree notched at the ground to save wood. Also the board on which the saw rests in the left foreground of the picture. This simple device keeps the saw out of the dirt, thus making sharpening less frequent and sawing easier.*

***BELOW**—R. L. Winfield Scott and son on W. S. Bell estate, Bellwood, Pa., holding tools used in producing pulpwood—double-bit axe, cross-cut saw, bark-peeling spud and wedge. Note manufactured spud in right hand of young man (at left) which cost 50 cents.*

All species of wood are used by some mills whereas other mills limit the species that are acceptable. Where woods of vastly different textures are accepted by the same mill, the producer is required to ship only one type of wood in a car. Roughly these groups are pine, softwoods, and hardwoods. The average car properly loaded will contain about thirteen units of wood.

It hasn't been a matter of chance that these mills have kept operating efficiently during these trying times. Competition for woods labor, stumpage, and logging equipment has been intense and mill representatives and pulpwood contractors have had to resort to services heretofore felt unnecessary to maintain wood supplies. Many companies have purchased large fleets of trucks and have leased these trucks to contractors and producers at a price which enabled them to continue operating, and the mill to get the wood. Company purchased power saws have been leased to producers, and contractors have been given financial assistance in purchasing stumpage. Contractors have scoured the bushes to find producers and having found them, have acted as their personal guardian to keep them satisfied. Perhaps it isn't a legitimate function of wood procurement to keep the producer's family informed on food rationing, fill out all the necessary forms for all types of rationing as well as draft deferment, and follow up all the details thereto, but it helps to get wood and in the long run that is what both the mills and the contractors want. Yes, the contractor is frequently called upon to bail the producer out of jail, or to arrange for the doctor to call at the cutter's shack

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***ABOVE**—Peeled pine being loaded on typical pulpwod truck in Buckingham County, Virginia, for the Covington (Va.) pulp mill of West Virginia Pulp & Paper Co. Note truck is driven into the woods close to wood to be loaded. This is cheaper than where wood must be skidded to the truck on a main road, but is often hard on tires.*

***CENTER**—Howard Ross (colored—42 years old) has been cutting pulpwood for 10 years. He can cut about ¾ unit per day—roughwood. Although without legs, he cuts 15 standard cords of pulpwood per year. He said "They says we needs wood for de wah, and I aims to do my part."*

***BELOW**—Elmer and Beulah Herman using Disston-Mercury chain saw to cut poplar tree into pulpwood bolts. They have earned $1,170 this year cutting pulpwood from their own timberland on spare days and in time after their regular shift at pulp mill of West Virginia Pulp and Paper Co., Luke, Md. Elmer has worked around wood yard and mill for 20 years. Beulah worked for company for 5 years on paper cutting machine. They own 200 acres of timber.*

when the stork is due. These are a few of the many activities the contractor is called upon to perform and it's up to him to come across or lose production.

It seems mention should be made of the good and timely publicity that has certainly aided the production of pulpwood. The War Activities Committee of the Pulpwood Consuming Industries has so thoroughly sold the essentially of pulpwood that hundreds of thousands of people who never before heard of it are now well aware of its importance and need. Many a cord of wood has been produced solely on the basis that it was needed in the War and the cutter didn't aim to let the boys down.

Although not as spectacular, the mill representatives also have been giving the public generous doses of good pulpwood medicine in the form of convincing arguments as to the value and need of pulpwood in the War as they make their way over their territories. Recently near Eagle Rock, Virginia, the author came across Howard Ross, a legless, colored pulpwood cutter. When asked why he was cutting pulpwood he said, "They say they needs wood for de wah and I aims to do my part." There are many Howards—perhaps not as severely handicapped as Ross—but nevertheless imbued with the idea that the boys need the wood and they aims to do their part in getting it for them. It hasn't been by chance that they have been sold this idea. The company representative has done a good selling job. These men of industry have accepted the challenge that their mills must have wood and by hard work, long hours, and an indomitable spirit in the face of difficulties, have succeeded in getting wood. No man's production was too small to be considered nor was any prospective producer too handicapped to receive their attention. This seems to be the reason for the good showing in the Appalachian Region.

Regarding future trends, no one can definitely make predictions. Already some portable saw rigs have made their appearance. Experiments are going on with portable barking machines. Undoubtedly the larger contractor operations will become more mechanized. But in the rough mountain country where the hill farmer holds sway, the cross-cut saw, the single bit axe, and plenty of strong backs will furnish the bulk of the production for years to come. Pulpwood cutting will continue to be "slack time work" and a part time job doesn't justify much investment for equipment.

Re-employment of Veterans

EUGENE J. BENGE, President
Benge Associates

▶▶▶ LEGISLATION has been passed for the purpose of assuring returning servicemen and women a place in the American economic system. Promises flow easily from the lips of patriotic orators and business men alike. What will they be worth? Seldom has the solution of a national problem presented such far-reaching economic and social implications. The security and future of American workers depends in large measure on how sound a solution is found.

Private business and federal agencies concerned with postwar America must co-operate in solving the problem. It is but right and just that persons returning from the armed services be given work opportunities. There can be no forgotten men if we are to remain economically a healthy nation. To be sound, planning must also take into the picture the home front soldier. But what is to happen to the temporary civilian war worker?

The decades prior to the War were devoted to the field of production mechanics. On the business stage today is a heretofore unrecognized character—*humanics*. New opportunities lie ahead for business men when they become as concerned with humanics or the human element in business as they have been with the mechanics of production.

The Problem

Some indication of the scope of the problem is already evident. Nearly one million men and women in service were discharged prior to January of this year. Another half million were discharged in the following eight months.

Of the first million veterans discharged 200,000 were considered too old, and 800,000 discharged because of disabilities. Two-thirds, or 550,000, suffered physical disabilities; the remaining third, or 250,000, represent mental cases. Very few of these had foreign battle experience. An inference of the postwar circumstance can be made when consideration is given to the fact that 51 per cent of the present hospitalized servicemen are mental cases.

Release of servicemen and women thus far has presented no special problem. The current manpower shortage provides openings for them. Thus the millions of temporary civilian workers who labor under the impression that their jobs are steady have not been affected.

A preview of what is impending can be secured from the following "guesstimate." After the fall of Germany the Army will release front line men at the rate of approximately 250,000 per month. When Japan has been whipped and the Navy also discharges its men, the number will total nearly 500,000 each month.

Anticipation of Business and Servicemen

Postwar re-employment plans must take into consideration the program of business and especially the plans of servicemen. Information secured in two recent studies will point to the trend.

A survey of large industrial plants by the Bureau of National Affairs produced the following information:

1) 13 per cent of the employers will be legally compelled to rehire more men than their entire prewar force.

2) The average firm will find it imperative to discharge 23 per cent of its present employees in order to take care of the veterans.

3) Many entered the service from temporary positions. Most firms are planning to rehire them.

4) The law provides that ex-servicemen have 40 days in which to apply for reinstatement. Numerous employers are allowing an additional 20 days.

In Genesee County, New York, questionnaires and letters were sent to servicemen and women. More than 1,000 replies were received. Tabulation of the returns produced these results: "546 want their jobs back; 130 have other plans; 58 have their own businesses; 75 wish to return to school; 92 don't know what they want to do; 23 will not return to the county; 99 wish to change from their former jobs because of increased technical training; 11 will remain in service."

The results of these studies present a picture which it is advisable to bear in mind when considering the provisions of Section 8, Selective Training and Service Act of 1940.

Requirements of the Law

What are the requirements of the law?

A service person who is eligible for re-employment is one who left a position, other than a temporary one, and who has received an honorable discharge.* He must be qualified to perform the duties of such position, unless circumstances of the employer have changed so as to make re-employment impossible or unreasonable. A veteran is allowed forty days after discharge in which to apply for his pre-induction job. The law does not specify that the ex-soldier must start to work within this period. A veteran who is discharged while hospitalized must inform his employer as to when he expects to return.

A veteran who is restored to his position shall be considered as having been on leave of absence. He therefore, shall not lose his seniority and shall be entitled to share in the prior and interim benefits provided by the employer subject to the established policy of the firm on leaves of absence in effect at the time the person was inducted.

Veterans cannot be released without cause for a period of one year after reinstatement. Employers must grant ex-servicemen security as well as all benefits to which they are entitled.

In the event that an employer fails or refuses to comply with the provisions of the law, veterans are entitled to a hearing in the United States district court. Such action must be brought in the district in which the employer maintains a place of business. The United States district attorney when reasonably satisfied that the veteran is entitled to his claim is designated to act as the veteran's attorney.

The Selective Service System has established a Veterans' Personnel Division. The Division is charged with the responsibility of administering the provision of the law. The plan of organization is like that used for the draft, that is under the national headquarters in Washington there are the state directors, under whose direction the local board functions.

Who Gets the Job?

Laws, like plans, are one thing and their execution quite another. The meaning of the phraseology used is subject to various interpretations. This further bids to complicate the solution of the issue. The law establishes certain policies, such as the provision that a serviceman shall be reinstated under certain conditions but there remain numerous policies which must be determined by the individual firms.

The law assured a job only to the original job-holder. In countless instances the original worker, *A*, entered the service and was replaced by *B*, who later also went to war and he in turn has been replaced by *C*. Both *A* and *B* return from war and desire to be re-employed. The company need only consider *A*, although numerous firms have indicated that they will make every effort to absorb the *B's*, even though not obligated to do so. If a firm does not choose to rehire *B*, what of his future? And how and where does *C* find a new job?

Neither *B* nor *C* can secure comfort from the promise of the firm at the time of induction or employment that the job was permanent. By virtue of his military service, *B* is entitled to the assistance of the Re-employment Division of the Selective Service through his local board. Does the home front war worker, *C*, become the forgotten man of the postwar period?

In the event *A* is a casualty, or is one of the estimated 40 per cent who do not want to return to their prewar jobs, *B* becomes the job candidate and must be re-employed by the employer.

Should *B* return prior to *A*, the employer is under no legal obligation to rehire him. Even though the firm takes *B*, *A* is still the original job-holder and as such is covered by law.

Many potential disputes over who is the original job-holder may be averted by having the personnel department maintain accurate record of employees who enter the service.

Exceptions

The employer is excused from re-employing an original job-holder only if the veteran is unable to perform the duties of the job. The veteran does not have to reveal the cause of his discharge. Both the Army and the Navy are attempting to establish the relationship between service ratings and civilian job skills. Numerous progressive employers are preparing job descriptions and inaugurating aptitude tests. These steps will prove valuable in determining the ability of a veteran to meet job specifications.

Physically disabled veterans' cases will be easier solved than mental cases. Public opinion does not yet accept mental disorders on the same basis as physical disabilities. The problem is not to bar the psychoneurotics from employment but to put them into jobs for which they are qualified.

Authorities interpreting the phrase "Like pay" are generally agreed that this means the rate of pay existing at the time of reinstatement. This is a simple matter in the case of manufacturing concerns where set rates are paid for jobs. Those which are on a salary basis, or have a rate range, are not solved so easily. The trend of salaries in a plant at the time of re-employment will frequently be used to determine a just salary for the veteran.

Interpretation of a change in the condition of the employer which makes rehiring of the ex-serviceman impracticable will lean in favor of the veteran.

Companies which have greatly expanded because of war contracts and which do not have comparable civilian business would probably not be expected to rehire former employees. However there is no assurance that the employer's responsibility will be set aside merely because expansion and contraction took place. The majority of disputes may center around the interpretation of this phase of the law.

Complications are in the offing over the union issue. Many firms have signed union agreements since the outbreak of the War. A veteran who was employed in an open shop plant at the time of his induction would not, upon his return, be compelled to join a union. The firm contract with the union calls for the discharge of non-union workers. What must the employer do? The former union member who returns to the job must maintain his union membership.

While the Veterans' Re-employment Law lacks clarity of intent in certain aspects it is a step in the right direction. Servicemen can secure encouragement and comfort from the plans and efforts of industry. Management is endeavoring, through sound personnel practices including job analysis and aptitude testing, to place veterans in jobs in which they can be successful and happy. Millions of smaller employers are likewise seeking an answer to their question. The problem is on the way to its solution and in the end must meet with success.

Common sense demands that employers and the government co-operate to assure the returning serviceman realistic and human consideration. Every effort should be exerted to place each man in the type of work for which his aptitudes are best suited and in which he can secure economic independence and happiness. Like logic applies to the civilian war workers. Even though the task be extensive and expensive, the results will be cheap if a sound and durable postwar economic and social structure is erected in America.

Tariff Legislation of the Pulp and Paper Industry of the U. S.

WARREN B. BULLOCK, Manager
Import Committee of the American Paper Industry

▸▸▸ WITH THE PROGRESS OF the War toward ultimate Victory, the business world is giving more and more attention to the reconstruction era which will follow—the devising of a postwar economics for America and the World.

In the considerations of the future, no little attention is being given to the problems of tariffs. If, as seems certain, there will be a radical revision of the existing United States Tariff laws, it is of immediate interest to review the history of tariff legislation as it has affected the paper industry.

Before delving into the historic background of the tariff rates on paper, however, it may be well to summarize future possibilities as propounded by various schools of thought. A powerful element at Washington is advocating the "abolishing of tariff barriers." Others suggest mutual tariff reductions between nations by a series of reciprocal trade agreements. Still others view with alarm the prospect of unlimited competition from countries now poverty stricken by the impact of war, but believe there could be a rapprochement between the United States and Canada, for a material reduction of duties by a bi-lateral agreement between the two countries. No small segment of American industry, however, fears the effect on this country and its standard of wages which might result from lowering our tariffs to a point where American industry would be deprived of its present protection against low-wage foreign competition.

In what area future legislation will rest remains to the future. Inasmuch, however, as the present Tariff Act, enacted in 1930, has already been on the statute books longer than any other American tariff law since 1816, it would be normal for changed business conditions to require a material revision of the existing law.

The American paper industry has been given a measure of tariff protection since the Tariff Act of July 4, 1789, when a duty of 7½ per cent ad valorem was provided for all writing, printing or wrapping paper, paper hangings and pasteboard, with 5 per cent on all other goods wares and merchandise. A revision upward was effected the following year, parchment and vellum being added to the dutiable list. Two years later there was another upward revision, and sheathing and cartridge paper were added to the list of papers named. Other increases were granted in 1794, and in 1816 all rates were doubled.

In 1824 and 1832 other provisions were added, all with material protection. The Tariff Act of 1842, however, went into more detail as to the rates on various grades than any previous law, some being reductions from the previous classifications. Writing paper, previously dutiable at 17 cents per pound was reduced to 15 cents, wrapping paper remained at 3 cents per pound, and other grades were dutiable at comparable rates. In 1846, a provision for manufactures of paper appeared for the first time, and changes not of great importance were made in 1857, 1861, 1862, and 1863. In 1872, came the first general reduction of duty rates, all rates previously in effect being cut 10 per cent, except unsized printing paper which remained at 20 per cent. Further reductions were made in 1883, when for the first time pulp appeared on the list, dried pulp being provided for at 10 per cent.

This was the period of the depression following the Civil War, and also the time when the paper industry was undergoing a period of rapid manufacturing developments, following the extensive development of the chemical pulp industry. In 1890 appeared the first provisions for different grades of pulp, mechanically ground pulp being held dutiable at $2.50 per ton, dry weight, unbleached chemical pulp $6 per ton and bleached pulp, $7 per ton. These rates were reduced in 1894 to 10 per cent for all pulps. In 1897 there appeared a new provision, the imposition of a countervailing duty equal to any export duty levied on pulpwood shipped to the United States. Groundwood pulp was placed on a duty basis of one-twelfth of one cent per pound, dry weight, unbleached chemical pulp one-sixth of a cent, and bleached, one-fourth of a cent.

The Act of 1897 was by far the most precise yet enacted, as regards paper. Printing paper was classified for duty on a sliding scale depending on its value, from three-tenths of one cent per pound for paper valued at not above 2 cents per pound to 15 per cent for paper valued at over 5 cents per pound, and here another countervailing provision was added under which printing paper was subjected to an additional duty if the exporting country imposed an export duty on pulpwood. Tissue papers were assessed for duty at 6 or 5 cents per pound, plus 15 per cent, depending on weight, the higher rate applying to the lighter weights. Except for an increase in the ad valorem rate on lightweight paper to 20 per cent, these rates are the same as those in effect under the Act of 1930 until its modification by the reciprocal trade agreements. Writing and wrapping papers were dutiable at approximate present levels, but a considerable number of specialty papers were specifically provided for at varying rates.

Mechanically ground wood pulp went on the free list under the Act of 1909, except for a provision imposing a duty on such pulp if imported from any country which imposed no export duty on printing paper, pulp or pulpwood. It was dur-

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ing this period that the industry felt the labor pains ultimately resulting in the admission duty free of newsprint paper. In the Act of 1909, the rate on printing paper continued to be on a sliding scale, based on value, paper valued at not over 2¼ cents per pound being assessed with duty at three-sixteenths of one cent per pound as against the previous rate of three-tenths of one cent for paper valued at not over 2 cents per pound.

In 1911, the steps were taken which ultimately resulted in the emigration to Canada of a major portion of the newsprint industry. By the Canadian Reciprocity Act of July 26, 1911, all pulp and all paper valued at not over 4 cents per pound, except printed or decorated wall paper, went on the free list. This Act, it will be noticed, was not confined to a duty free agreement on newsprint paper, but included every grade of paper, which immediately began to appear in increasing quantities, especially newsprint. Canada, however, failed to extend reciprocity to United States papers, and the Act was abrogated by the Tariff Act of October 3, 1913. However, in the period between 1911 and 1913 there was a series of changes, due to Canadian action. The Canadian Reciprocity Act restricted the importation of duty free paper to that on which there was no export duty, export license fee or other export charge, or any prohibition or restriction of the exportation imposed upon such paper, or the wood used in its manufacture. This proviso at first excluded from free entry all paper made from wood from Crown lands, for which a fee was charged by the Canadian Government, and duty-free imports were confined to paper made from mill-owned forest areas. Canada, however, lifted its restrictions on wood, to permit paper made from Crown land pulpwood to enter this country duty free. The United States Customs Court held that the provisions of this Act applied to all countries with which the United States had most favored nation treaties.

The Tariff Act of 1913, known as the Underwood Act, was the nearest approach to free trade in the history of the United States. Newsprint paper was not specifically mentioned but all printing paper valued at not over 2½ cents per pound was placed on the free list. Tissues were cut to 30 per cent, fine papers to 25 per cent, and comparable reductions made in other grades. With the First World War, however, these provisions, except as to newsprint paper from Canada, became largely ineffective. On September 8, 1916, the free rate for printing paper was amended to include such paper valued at not over 5 cents; on April 23, 1920, the figure was raised to 8 cents.

The term standard newsprint first appeared in tariff law in the Act of September 21, 1922, when such paper was placed on the free list, as distinguished from printing paper including newsprint other than standard for which a duty rate of one-fourth of one cent per pound plus 10 per cent was provided. The Act of 1922 restored most tariff rates to those provided by the Act of 1909, and changes made in the Tariff Act of 1930 were principally a clarification of provisions for paper which were obscure in previous legislation.

The Tariff Act of 1930 with a series of specific changes secured by the domestic industry, provided what the domestic industry believed to be an adequate protection for domestic in-industry, but not prohibitory rates. The industry asked for and in large measure secured rates which were designed to give the domestic producers an equal opportunity, and no more than an equal opportunity, for competition in the domestic market with papers imported from abroad.

With the coming into power of the Democratic regime in 1932, there was soon instituted a program for progressive tariff reduction, through the medium of Reciprocal Trade Agreements. Authority to the President to reduce or increase duties within a margin of 50 per cent of existing rates, was granted by the so-called Reciprocal Trade Agreement Act, enacted June 12 as a section of the Act of 1930. With this Act in effect, and under extensions authorized as often as the limiting period expired, duty rates on paper have been heavily reduced, in many cases to the level of the Underwood Act of 1913.

It is important to note that under American law, any duty reduction effected by any trade agreement with any country, became immediately applicable to any other country with which the United States had most favored nation treaties, unless for reasons of discrimination against the United States the President should exclude such specified countries from the benefits of any such tariff reductions. This was done in the case of Germany and in a few minor instances.

Under the various Reciprocal Trade Agreements, the following are important duty reductions authorized:

Book and printing papers, reduced from one-fourth of 1 cent per pound and 10 per cent, to one-fifth of 1 cent and 5 per cent, under an agreement with Canada.

Pulpboard in rolls for use in the manufacture of wallboard, reduced from 10 to 5 per cent, under a Canadian agreement.

Special tissue papers reduced 50 per cent under the Canadian agreement, when valued at not more than 15 cents per pound for lightweights, and 10 cents for heavyweights. India and Bible paper reduced 50 per cent under the British agreement.

Straw paper reduced from 30 to 15 per cent by the Netherlands agreement.

Processed paperboard reduced from 30 per cent to $14.50 per ton, but not less than 15 per cent nor more than 30 per cent, by the Swedish agreement.

Wrapping paper reduced from 30 to 25 per cent by the Swedish agreement, and later kraft wrapping reduced to 20 per cent by the Finnish agreement.

The Reciprocal Trade Agreement with Canada was probably of greatest importance to the American industry because of the potential effect on the book and groundwood printing paper fields. Canada's rates are generally higher than those of the United States on comparable papers. The United States, however, was granted most favored nation treatment on all its commodities under this agreement. While Canadian newsprint is admitted to this country duty free, the Canadian tariff provides for a duty of 12½ per cent on all such paper valued at not over 2¼ cents per pound, and 22½ per cent on other printing paper. The rate on book paper and groundwood grades, therefore, is about twice the rate imposed by the American tariff. Paperboard is another typical example, the American duty rate being 10 per cent as against the Canadian 22½ per cent figure.

A noteworthy feature of the Reciprocal Trade Agreement Act is in its restriction of the right of American manufacturers to appeal to the courts for any action of Customs officials which they may believe to be contrary to law. The Act of 1930 provided for American Manufacturers' Protests, under which domestic industry had the right of appeal to the courts. Under the Reciprocity Act, no such appeal is permissible on any item which is named in any trade agreement. Another interesting fact is the repeal of the so-called compensating duty clauses in the Act of 1930. There were a dozen commodities for which Congress wrote in the specific provision that if a foreign country levied a duty on such commodity in excess of the standard American rate, the duty

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Postwar Planning *and* Organization

FRED D. MOSHER

▸▸▸ ONE MIGHT EASILY CONCLUDE from the wealth of postwar articles being published currently, that planning is a phenomenon of war, that its necessity is brought about only by exigencies created by world conflict. Actually, the situation is much more elementary and the popularity of the idea comes only from the fact that the unknown, and "predictions-of-things-to-come" always make good reading. Hard-headed business men know that the planning *they* are thinking about is something they had been doing all along, but the devotion to activities related to winning the War has sidetracked thinking for doing; we are now about to take up where we left off. The difference between prewar and postwar planning is that our economic energies have been dammed up and we must be prepared for the flood of these energies when hostilities cease. In picking up the loose ends there are a number of important facts to face.

The economic future cannot be contemplated without an organization. It must come first in any enterprise or activity. It is a most serious consideration. Key men, who once spearheaded progress within an organization are now key men in the war effort; they are lost for the moment as far as any contribution to their employers is concerned. They must be replaced, and, if possible, from within the organization. This must not mean that top men now in the Armed Forces must be overlooked; rather they must be considered as supplements to an organization that should be functioning when they return.

Since a planning organization without authority is like a law not backed by enforcement, it must be headed by an executive authorized to implement the plans made. He should be a top man who can command the respect of the group and strong enough to handle a tough assignment. Thousands of plans now being made never will be executed simply because they are dreams which never have been subjected to searching analysis by an executive with authority to push forward those with merit. The leader of a planning group must be familiar with the industry and the industries which provide it with its bread and butter.

The paper industry, for example, depends on hundreds of other elements in the economy. In this respect there are three elements which the paper industry must contend with: (1) The industry out "front" which takes its output; (2) the industry behind it which supplies it with its machinery, plant, processes, and improvements; (3) an over-all governing element—the national economy which governs the prosperity of all industry. The national economy is always influenced by government policy and trends and for this reason (probably more so in the future) the progress of the Nation is determined, to a great extent, by the course determined by government. The governing element is of utmost importance to the paper industry since foreign policy has a decided effect on imports and exports.

The leader of the planning organization must consider all these elements in charting the course to be followed. The head of any planning organization must be a co-ordinator of efforts. Although the planning head does not lay down general policies, he must obtain results in keeping with the program agreed upon by top management.

The approach to the future, from the standpoint of management, may be made in many ways. Should it be decided to stick to present products planning will logically consider improvements in plant facilities, improvement in processes, extension of marketing, and improvement in the product.

It is most likely, however, that planning in the paper industry will give considerable thought to the utilization of wastes, production of by-product alcohol, and marketing in the plastics field. It is the responsibility of top management to make quite clear the scope of the planning program. Once determined, the authority of the planning organization must be understood by all concerned. The authority must be sufficient to permit smooth functioning at all times.

Top Management Responsibility

Before general policy, as related to planning, can be decided upon, management must set up an objective. As the plan develops, methods may have to be revised but the objective must remain.

In view of the responsibility to war veterans it is essential that the personal questions be settled in such a manner that the men and women now in the service will be provided for when they return to the organization. This requires flexibility in the organization, but at the same time the policy of "every one in his right place" must be followed. It is also important that each executive and supervisor know his place in the organization and be fully acquainted with the functions he must perform.

Management must look upon the planning group as an industrial task force and pass on to it some definite objective and the authority, through its leader, to carry out the task of reaching the objective.

Essentials for the Planning Group

The leader of the planning group should be prepared to put the plan in writing which will act as a guide for all concerned. The plan should be detailed. Where reconversion problems are involved, the extent of the reconversion should be outlined.

Priority must be established. Again, if reconversion is in the picture it must get priority since it is natural that the plant must resume production of its peacetime product at the earliest possible moment. What comes next can only be determined by the few; it will be left to the many to do the detail work. To companies looking to new products, research in that direction should have a top place on the priority list. In almost every instance, whether new products are considered or not, plant facilities will have to be studied. The postwar world will be competitive, and this means that cost reduction must also have a prominent place on the priority list. Product improvement will be on all agendas, but where this will be placed in the program will depend a lot on what is being manufactured.

Both cost reduction and product improvement are being viewed in many ways by different people. Many manufacturers of consumer goods, for example, feel that production must precede everything else. Old models will be reproduced in such lines as automobiles and refrigerators simply to get them on the market. Time is of the essence to these manufacturers and many of them feel that the future belongs to those who "get there fustest with the mostest." It is argued further that the dislocations in the labor force will rule out any expectations of efficient production until after the first rush is over. If the arguments are

correct, then it may be true that management energies must be devoted to production while cost reduction and product must give way, temporarily, to the regaining of markets that may be lost if any other course is taken.

This situation will not be such a serious factor in the future of the paper industry. Tastes in the industry are not as fickle as in the consumer market; the product is one that has been steadily improved and anything less than good will not be acceptable. It would seem that unlike the consumer goods industries, the paper industry must not neglect product improvement to grasp at the nebulous straw of quantity production.

Who Should Be in the Planning Group

It will be extremely important that the director of planning have around him the right men to carry out his program. Each individual must bear his share of responsibility and see that those under him carry out their assigned duties.

A full-time assistant is an important person in any planning group. The assistant should be free to devote all of his time to knitting together the activities of the other elements.

The sales department should be represented in the planning group. For the most part the sales department will furnish information necessary for the functioning of the group. For example, statistical information on sales must be considered by engineering, manufacturing, and others concerned with the making of the product. The sales department should be prepared to explain figures on the various products—why they were sold or why they were not. Advice to the manufacturing department as to quality should be supplied by the sales people.

Manufacturing probably should occupy the key spot in the planning organization of a paper manufacturing plant. In the manufacturing group should be those qualified to discuss plant improvements, cost reduction, and product improvement. Both engineering and production talent are vital in this section.

Two other groups should be added to a large staff. First (and more and more emphasis is being placed on this function) is a market expert. Markets are no longer being explored and exploited haphazardly. Marketing is rapidly becoming a science. New outlets for old products; new products that may be widely distributed; research in distribution and determining what is *wanted*, are all proper duties for a high-grade marketing group. In many organizations marketing information is often the job of the sales department. This is not necessarily the best way to handle marketing. Sales, for the most part, are the result of a good product for which there is a demand; it follows from the fact that something is available for selling. Getting an accepted product in the customers' hands is a full-time job for the sales organization, and to burden it with the added job of market research and exploitation is to invite inefficiency in both fields. Both marketing research and development, and the selling of any product are twin functions, but they do their best when handled by different types with talents not exactly alike.

A second addition to a planning group should be a person for whom no adequate title seems to be available. It is suggested that in any plant, such as a paper mill, there are great opportunities for improvements that come slowly, but which could be brought about sooner if the human resources were available. The "improver" should be concerned with anything that will give to his plant the benefit of advances in the industry and those related to it. There are such personnel in many industries and their value has been definitely demonstrated. In many plants improvements come only after the necessity has become obvious. Often a manufacturer of improved equipment waits until actual necessity develops before his machine or process is accepted; general improvements in processes are not adopted until competition provides force to overcome natural inertia; costs are often hiked by prolonged use of obsolete machines.

In the future new materials will be available; new ways of doing old things will be developed, and a planning group should be prepared to examine anything external to the organization that might aid the carrying out of a constructive program.

Attaining the Objective

What each individual or group must do to carry out the details of the planning program will depend a lot on the leadership. The personnel of the group will consist of capable people and their judgment will have to carry weight.

Assuming that new products are contemplated, it may be left to the group to determine what. In any case certain products will be more attractive than others. The leader will have to decided what products should be considered and what must be discarded; if this is not done discussions and studies become endless, and like the rider in the funny book, the group will be forever galloping in all directions.

Once the products are determined, plant facilities must be considered. If additions and extensions are within the contemplated range, the manufacturing group will immediately set about its job of equipment planning. Manufacturers will be consulted. Layouts will be made and cost information will be obtained from all available sources. Dovetailing the new products with the standard products will have to be accomplished. The studies should consider general plant improvement possibilities. Deliveries on new machinery must be determined.

Raw materials requirements may determine the product. In many paper mills the conversion of waste is getting a large share of attention from postwar planning groups. Will the new product produce a reclaimable waste? Does the product have to compete with a similar one produced in another industry and from a different raw material? What capital investment will be necessary? Will increased power plant capacity be necessary? Will the supervisory organization have to be changed? All of these questions, and many more, must be answered.

With new product development, research facilities of the laboratory kind are often desirable. These facilities need not be a part of the plant, but service may be profitably obtained from outside sources. Among the research facilities that may be used are: private research organizations, the facilities of trade associations, government research organizations, the facilities of educational associations, and state organizations often housed in universities. If a laboratory is already part of the plant it may be well to extend its facilities to provide research on the new product.

The manufacturing group should at the earliest moment submit its recommendations along with its cost estimate. If there are alternate recommendations they should be submitted and discussed. It may be necessary for top management to give its approval, particularly if the capital investment is large. Should this be the case it is best to have both marketing and sales information available.

The marketing group should explore present applications for the new products and seek to extend their uses. Research will be necessary. Testing is of advantage if the product is entirely new. In many instances products which have been developed for wartime uses will become available for peacetime use in industry, but to

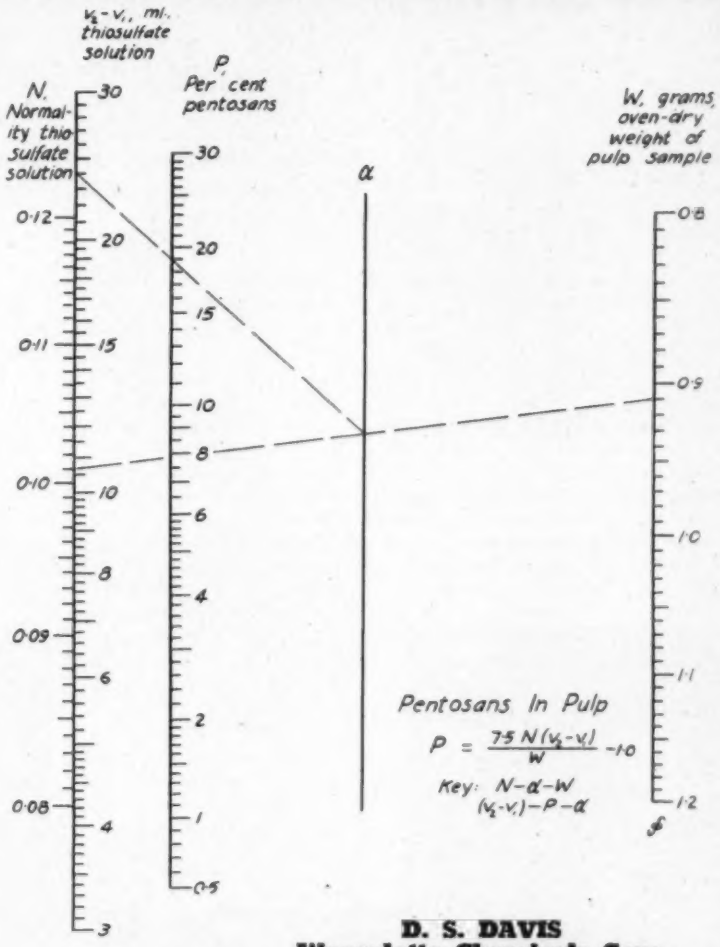
extend their uses extensive testing may be necessary. If the product or products have limited application it is up to the marketing group to determine this. The market research organization should provide the sales group with information on which sales estimates may be made. The market group may decide to make or have samples made to check and double-check merits and weaknesses. In cooperation with the plant laboratory, or one engaged for the purpose, defects of the product should be corrected permanently.

The sales department carries the responsibility of unearthing the sales problems for the future. It may develop that a large export business will fall to the paper industry in the years immediately following the War. To many organizations this will be something new. If new products are developed they may have an extensive foreign market. In thousands of plants, in all industries, sales organizations have been stripped to the bone. Entirely new selling techniques are predicted by many economists. The duties of the sales group will be to plan for training new personnel and retraining old ones. In general, the sales group will have to advise the other groups, parallel its activities with the others, and keep abreast of all developments. It should be active in keeping regular customers informed as to what they can expect from the company in the future.

Is There an End to Planning?

It is common to hear executives talk about postwar planning as if it is something that will suddenly end once the future course has been set and the execution of plans is being carried out. As far as *immediate* postwar plans are concerned, this is true. These immediate plans may have to do with getting plants back into production of peacetime goods. But planning, considered in its broader sense, and considered as an active tool of management, should never cease. The reduction of planning groups should always be done with care. Once a good working team gets operating it will pay for itself over and over if given reasonable scope and the backing of top management. With the shifts and trends in the economic system in a state of flux it is reasonable to expect that the end of the War will see further advances which will tax the abilities of those concerned with the direction of private enterprises. Planning will be a "must" not only for the immediate postwar years, but for the long years of peace which we all want to see.

Nomograph for Pentosans in Pulp


$V_2 - V_1$, ml. thiosulfate solution
N, Normality thiosulfate solution
P, Per cent pentosans
W, grams oven-dry weight of pulp sample
α
Pentosans In Pulp
$P = \frac{7.5\,N(V_2 - V_1)}{W} - 1.0$
Key: N–α–W
$(V_2 - V_1)$–P–α

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▶▶▶ THE QUANTITATIVE DETERMINATION of pentosans in pulp by the TAPPI Tentative Standard Method T233 m—43 (*2*) entails the distillation of furfural formed by the action of hot hydrochloric acid on the shredded material. The distillate is brominated, iodine displaced by excess bromine is titrated using standardized thiosulphate solution, and pentosans are calculated from the expression,

$$P = \frac{7.5\ N\ (v_2 - v_1)}{W} - 1.0$$

where P = percentage of pentosans in the pulp

N = normality of the thiosulphate solution

v_1 = milliliters of thiosulphate solution used in the test

v_2 = milliliters of thiosulphate solution used in a blank

and W = weight, in grams, of the pulp sample, corrected to the oven-dry condition.

The equation can be solved rapidly and conveniently by means of the accompanying alignment chart which was constructed by methods described previously (*1*). The use of the chart is illustrated as follows: What is the percentage of pentosans in soda pulp when a sample having an oven-dry weight of 0.91 grams requires 14.9 ml. of 0.101 normal thiosulphate solution, a blank requiring 38.9 ml. of this solution? Following the key, connect 0.101 on the N scale with 0.91 on the W scale and note the intersection with the α axis. Connect this intersection with 38.9 — 14.9 or 24.0 on the $v_2 - v_1$ scale and read the percentage pentosans as 19.0 on the P scale.

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A RECREATIONAL PROGRAM...

Its Place in Industry

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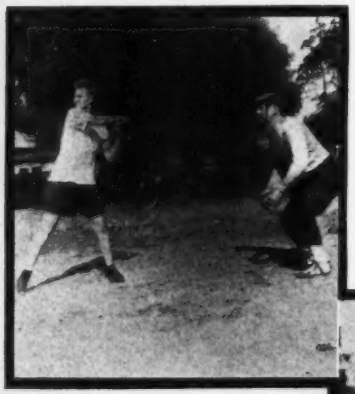
▸▸▸ NO PLANT CAN BE successful and turn out quality and quantity production unless the employees of that plant have learned to work together in a spirit of co-operation as one harmonious family. It is the duty of management to provide the means and assume the responsibility of seeing to it that this spirit prevails among the employees.

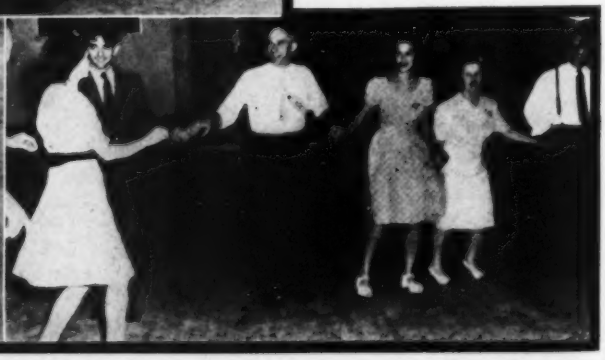
The pulp and paper industry has gone to great lengths to promote the general welfare of employees by installing such features as first aid departments, periodical physical examinations, rest periods, visiting nurses, unemployment compensation, workmen's compensation and many other innovations. These developments undoubtedly have done much to improve the status of the employee and to build greater morale. Yet, in spite of the progress that has been made along these lines, the effort will fall short of its goal if provision is not made to counteract the boredom and fatigue that results from the routine of daily work.

Regardless of improvements in working conditions, there are many jobs that require working under adverse and very trying circumstances, such as fumes, dust, heat and cold. In other jobs, bodily activity is limited and in still others, the work is of such a monotonous nature that it brings on a mental lethargy. All of these things tend to destroy the morale of employees and defeat management's efforts to maintain a high standard of harmonious co-operation. In order to remedy this condition, it is necessary that the employees have a mutual interest in something other than their daily work. They must have something that binds them together and offers a common ground for discussion. In other words, they must learn to play together as well as work together.

Nothing can produce this effect better than a well-planned recreational program which creates good, clean competitive spirit between individuals, groups, and departments. A program of this type provides relief from boredom, gives the employee new inspiration, stimulates the mind, reduces physical and mental fatigue. It creates a healthier and safer worker. The diversion of mind and body which it affords the employee is of inestimable value both to the employee and the company. The spirit which it develops will be carried into daily work and the effect will be unbeatable in total plant results.

What should a good recreational program include? That, of course, depends entirely upon the facilities available, the number and type of employees, and the ability of the director to plan interesting and timely programs wide enough in scope to embrace all who desire to participate. A good program is one that is fitted to the prospective participants under





proper leadership, rather than the interests of the director or a small group of individuals, who desire to display their special skills. A moderate, well-balanced program, taking in the greatest number of employees, is best.

Prior to the War, when most of our employees were of a younger average age, the Hoberg Paper Mills' recreational program consisted of bowling, baseball, diamond ball, tennis, basketball, an annual picnic and an annual union dance. We do not pretend to have had a complete program. Lack of facilities made an over-all program impossible at the time. However, in many of our activities we promoted intraplant competition and awarded prizes to first, second and third place winners. The best talent in the various sports was selected to represent the company in city competition. This produced a two-way effect. We had intraplant rivalry and at the same time, the employees were interested in the showing made by company teams in city competition.

We have found our limited facilities and program to be of great benefit to our employees, and some day we hope to have a complete plan for year-round activities.

A most important point to keep in mind in developing a well-rounded program is how to determine what activities should be included and what method should be used to obtain the maximum results. Questionnaires to the employees asking for their suggestions and ideas seem to be the best solution, because it invites the employees to participate from the very origin of the program. It will give them the satisfaction of knowing that the program is for them personally and will be an incentive for them to participate in the activities which they most enjoy.

The program should be put into the hands of a full-time recreational director with imagination and leadership ability, who, with the aid of employee representatives, can plan a schedule of activities that will appeal to and hold the interest of the greatest possible number of employees. A complete program should include an indoor recreation room for inclement weather, a reading room, lessons in handicraft, photography, painting, movies, dramatics, music, dancing, table tennis, shuffleboard, pool and billiards, cards, and any other amusements that offer an opportunity to those who are less nimble of limb and yet are eager to participate in some activity.

The program also should be arranged to include the families of workers as spectators, and, thereby, create a bond or common ground between the families of the employees. The interest of family members in these activities will be an incentive for the employees themselves to participate. The officers and directors of the company should take a part in the program in order to cement the common ground of friendship between employee and employer. If actual participation is impossible, they should at least be on hand as spectators.

While it is a stimulating influence to have company teams in city competition, this should come only as a by-product and should not be the ultimate goal of the recreational program. The idea is to have an intra-company program where the less talented are not discriminated against. No one likes to be a spectator if he can, even in a lesser degree, be a participant.

A recreational program is a "must" for after the war, because it is going to be difficult for the young war veteran to settle down to a routine life after his fast-moving and action-packed existence of the war years. Good, clean physical recreational activity will be a tremendous help in restoring these young men to the normal civilian routine.

One could go on almost indefinitely in the planning of a recreational program. The only limitations are facilities, time, and finances, but, as in all things, there is the right time and the right place, and in moderation all things are good. A moderate, well-balanced program, taking in the greatest number of employees is the best means of creating a happy and efficient family of workers.

ALKYD RESINS *in the Paper Industry*

GEORGIA LEFFINGWELL, Ph. D. and MILTON A. LESSER, B. Sc.

▶▶▶ NOW THAT ALLOCATION restrictions are completely removed from glycerine, technologists are turning with renewed interest to its wider potential usefulness. Men in the paper industry, who have long employed glycerine as such for its valuable combination of purely physical properties, now appreciate that it is capable also of reacting to form numerous new and distinctive compounds.

Of all the reactions into which glycerine enters as a chemical substance, none is more important than those resulting in the group of synthetic compounds known as the alkyd resins. One proof of this is glycerine consumption statistics covering 1943. These government figures (*1*) show that more glycerine was used in the production of synthetic resins and ester gums than in any other industrial field. A major proportion of this resin production, as might be supposed, went into the manufacture of tough, durable protective coatings required for all types of military and naval equipment. Prior to the War and at present, however, substantial quantities have gone to the paper industry (*2, 3*).

With these glycerine-utilizing resins it has been possible to create new effects, new finishes and even new types of paper products. Thus the alkyd resins have been used to make strong, tough paper with dull or glossy, flexible or stiff finishes that may be opaque, translucent or clear, as required. As finishes, these resins impart high resistance to solvents, greases, moisture, weathering and handling. In addition to their employment in coatings, the alkyds are finding increased use in impregnating and sizing compositions, in bonding and laminating preparations and in a host of special finishes and treatments. Interest in alkyd resin emulsions for use in paper processing has been further aroused by the use of similar emulsions in protective "water" paints during the war-born solvent shortage. Alkyds likewise have found increasing utility in waterproofing compositions for cellulosic derivatives such as cellophane.

Chemists will point out that alkyd resins are produced by reacting polyhydric alcohols with polybasic acids. Although other alcohols may be used and a variety of acids (e.g. maleic, succinic and sebacic acids) can be utilized, the reaction products of glycerine and phthalic anhydride form the basis of most practical alkyd formulations. (*4*) These glycerine-phthalate resins are seldom used as such, but are usually modified with oil or oil derivatives, natural or synthetic resins or other substances to give properties suitable for the specific purpose contemplated. Thus, by variations in formulation it has been possible to create an almost infinite variety of alkyd resins to meet numerous industrial specifications, including those of the paper field.

Although alkyd resins are still generally regarded as comparative newcomers, they have found use in paper treatments for more than a decade. Their first important application, a direct carry-over from the paint industry, was in coatings. Many examples serve to illustrate such utility. Several years ago, a foreign process (*5*) for glazing paper, specified the use of a coating consisting of a glycerine-phthalic acid resin plus suitable pigments. Somewhat later, interest was aroused by Miller's (*6*) thermal process which, it was claimed, coated paper faster and cheaper through the use of heated rolls which applied a mixture of synthetic resins, rubber, and wax. The unique feature of this method was the use of a melted composition rather than a solvent or vehicle carrier and the ready control of the film applied to the paper. Relatively few resins could be used, but modified alkyds were employed successfully. This so-called "dry-coating" it is claimed, was essentially a process whereby poorly formed or very porous papers could be coated with very little penetration and no curling. In addition, such alkyd-containing coatings could be used for laminations. Alkyds were also specified in later paper-coating processes developed by this inventor. (*7*)

Others also have specified alkyds in preparing thermo-plastic compositions suitable for coating paper. One such is a hot melt coating composition consisting of a rosin-modified glycerine-maleic anhydride resin, ethyl- or benzyl-cellulose and a small proportion of triphenyl phosphate. (*8*)

Alkyds have found wide use in rendering paper greaseproof, waterproof or both, many of the processes being developed especially for use on wrappings or containers for foods. Several of the earlier treatments as well as some newer ones used alkyds in conjunction with cellulosic coating materials (*9, 10*). Others have used combinations of rubber, cellulose esters and glycerine-phthalic anhydride resins (*11*). Other coating compositions employ these resins in conjunction with such standard materials as gelatin or casein. (*12*) In some processes for grease-resistant paper, an alkyd, modified with a fatty acid, is the chief component of the treating material (*13*).

In his discussion of the use of artificial resins, de Buccar (*14*) commented on the growth of processes which use alkyd resins in the sizing and impregnation. More recently in a comprehensive review of the literature on wet strength paper, Collins (*15*) cited several patented examples (*16, 17, 18*) in which alkyd resins may be employed to impart this desirable characteristic.

A significant development of the last few years has been the tremendous growth in popularity of aqueous dispersions or emulsions of synthetic resins, such as the alkyds, for coating and impregnating purposes. While the current solvent shortage may have been a factor in their initial rise, these dispersions have proved their value on the basis of their own superiorities and economies. Singularly enough, such aqueous dispersions have been known and used to a limited extent for some years. In 1940, Poor (*19*)

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pointed out that dispersible synthetic resins, either in or on the sheet, offer the paper manufacturer and converter a new tool by which special, unique characteristics can be imparted to the sheet. He mentioned that among the types of resins being used were the water-dispersed, pre-cured, pre-polymerized alkyd resins.

In 1942, in a report to the TAPPI meeting, Maguire and Rote (*20*) stated that water-soluble alkyds may prove to be of interest as beater sizes for special purposes, since they are readily precipitated by acids. These resins may also be incorporated into casein, starch or glue coatings to improve toughness and adhesion. More recently, Nazzaro (*21*) reported that synthetic resins can be used to extend latex or reclaim rubber dispersions for the saturation of paper. He noted that reclaim can be improved by the addition of special alkyd resins. Nazzaro also mentioned that all-resin saturated sheets and flexible paperboards, completely free from rubber in any form, are in commercial manufacture.

The catalogues of resin manufacturers and patentees indicate that alkyds have found extensive use in the impregnation and treatment of paper and paperboard. Representative of the patent field is a process (*22*) describing methods for emulsifying a stearic acid-modified glycerine-phthalic anhydride resin so as to make it useful for paper sizing. A more recent example of a resin emulsion suitable for use in coating paper specifies the employment of a mixture containing 70-98 per cent of a water-insoluble drying oil-modified alkyd resin and from 30-2 per cent of a rosin-maleic acid resin (*23*).

Because they are so adaptable the alkyds have had interesting applications in preparing special paper products for specific uses. For example, in discussing the manufacture of paper for making lampshades, Meier (*24*) remarks that in the more expensive shades a paper from refined pulp is needed and an alkyd is preferably used in finishing such products to avoid yellowing on exposure to light. One patent (*25*) utilizing this property describes methods for making transparent, heatproof, and lightproof lampshade papers by impregnating unsized paper with a fused mass containing alpha-cellulose and a resin of the glycerine-phthalic acid type.

Another rather unusual application for these resins is in making bank paper proof against forgeries. Rayon is treated with a fluorescent dye and then fixed by means of a solution of glycerine-phthalic acid resin in acetone. The treated fibers are then cut into small pieces, or pulverized, and added to the paper pulp (*26*).

As binding agents or as impregnants to impart certain desirable qualities of water resistance or the like, alkyds enter extensively into the production of abrasive papers for grinding and polishing (*27, 28, 29*). These resins may also be employed to make special industrial filter papers. In one instance, the fibers of porous paper stock are loosened and distorted by treatment with a sodium hydroxide solution. After washing and drying, a thin solution of alkyd resin is applied to simultaneously waterproof the fibers and cause them to stick together (*30*).

Alkyd resins have long enjoyed important uses in the preparation of insulating materials of high electric strength, especially in varnishes for paper and other fibrous materials. A recent illustration (*31*) of such application is given in a patented method for making a flexible, odorless, heat-resistant and age-resistant material. According to the specifications, paper, cloth or metal foil is impregnated or coated with a baked film prepared by reacting glycerine with a mixture of phthalic anhydride and maleic anhydride plus cottonseed stearin.

Although it is well known that glycerine is the most important plasticizer for cellophane, the value in this field of its resinous derivatives, the alkyds, is less well appreciated. Many recent patents (*32, 33, 34, 35*) attest that various alkyd resins enter extensively into methods for moisture-proofing these valuable cellulosic sheets and films.

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Tariff Legislation . . .

(Continued from page 852)

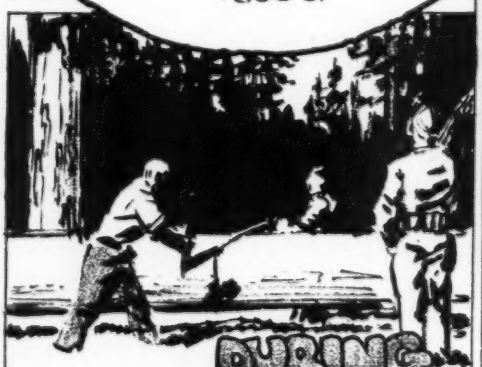
rate on importations of this material from such other country should be dutiable at the rate charged by the exporting country. Under this provision, Canadian paperboard shipped to this country was dutiable at the Canadian rate. With the repeal of this proviso, Canadian paperboard imported to the United States is dutiable at 10 per cent, while the same type of board shipped to Canada is dutiable at 22½ per cent.

This survey of present conditions, combined with a history of past tariff legislation, is sufficient indication of the complex problem that confronts the American paper industry when tariff revision comes up before Congress as it is certain to do in the not too distant future.

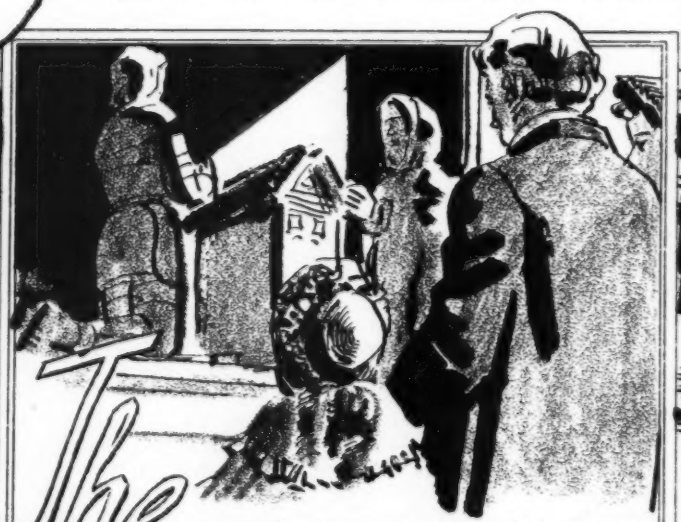
Paper SKETCHES . . . . . .

THE FIRST ISSUE OF CALIFORNIA'S PIONEER NEWSPAPER, PUBLISHED IN 1846 AT MONTEREY, WAS PRINTED ON PAPER LARGER THAN FOOLSCAP WHICH HAD BEEN INTENDED FOR WRAPPING NATIVE CIGARS.

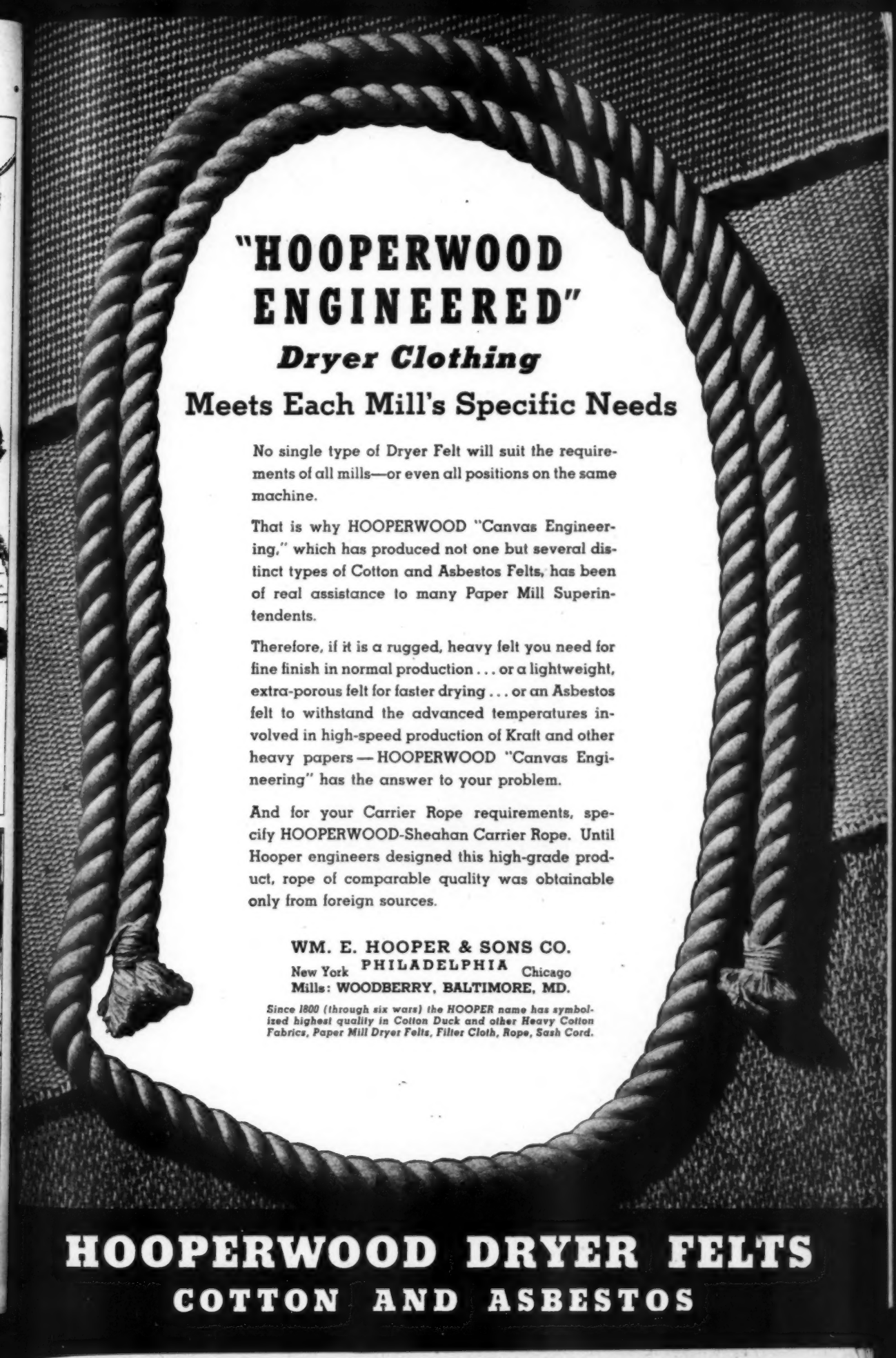
THE FIRST PAPER BAGS PROBABLY WERE MADE BY PENNSYLVANIA MORAVIANS IN THE 1830'S.



DURING JULY, 1944, THE U. S. DEPARTMENT OF COMMERCE REPORTED THAT 72 PRISONER OF WAR CAMPS HAD BEEN ESTABLISHED ENTIRELY FOR PULPWOOD CUTTING. OF THESE CAMPS, 15 ARE LOCATED IN THE NORTH; 57, IN THE SOUTH.



THE SUMPTUOUS TOMB OF SIR JOHN SPIELMAN, PAPERMAKER TO QUEEN ELIZABETH, WAS RESTORED IN 1858 BY FUNDS SUBSCRIBED BY PAPERMAKERS ALL OVER ENGLAND.



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ANNUAL SAFETY CONGRESS

"Dedicated to Victory"

▸▸▸ THERE IS PRACTICALLY NO activity or occupation that safety does not touch. That a nation at war has become deeply conscious of the waste of precious human life caused by accidents was proved by the unusually large attendance of management, industrialists, supervisors of labor, and civic leaders at the 33rd annual safety congress of the National Safety Council which met in Chicago October 3-5.

America is approaching the solution of this—the most vital problem of the home front—with a determination to master it. There no longer seems any doubt that a large percentage of American business considers the saving of human life as the cornerstone of production. And with military and civilian ranks streamlined for V-Day, the theme of the Congress, "Dedicated to Victory," was a battle cry.

At the Annual Meeting of Members of the National Safety Council, which opened the Congress on the morning of the 3rd, Col. John Stilwell, who has been president of the Council for the past five years, retired from that office. During that time he has devoted himself unstintingly to the cause of national safety. His address, as retiring president was on the subject "Five Years of Far-Reaching Progress." Indeed the progress of the National Safety Council during the nation's most critcial period has been "far-reaching" indeed. Emphasizing the need for still greater expansion of the safety movement in America, Col. Stilwell said that although the National Safety Council's budget has been expanded 170 per cent in the past five years (to $2,300,000 a year), it still represents less than two cents a year for each person in the United States.

During the past five years, Colonel Stilwell said the National Safety Council has changed from a membership organization to a truly national organization—the national co-ordinator and the national symbol of safety. During this period, the Council entered fields of activity that were almost entirely new. For example, it has developed policies, programs and staffs in the important fields of home and farm safety. Colonel Stilwell made the statement that "Where one person was conscious of the safety movement five years ago, I believe it is fair to say that 100 are conscious of the movement today."

Colonel Stilwell praised safety-minded industries which have given financial and moral support to the safety movement and thus helped make possible the rapid expansion of the movement.

As typical results of this expansion, Colonel Stilwell cited these examples:

A 68 per cent cut in accident frequency and estimated savings of 400,000 man-days of production among 300,000 employees of Army Air Service Command.

Ned H. Dearborn, newly elected president of the National Safety Council.

A 16.9 per cent reduction in accident frequency among about 1,500,000 workers in 300 Navy and contract shipyards, and savings of 5 million man-hours and 6 million dollars in production was effected in Gulf Coast shipyards alone.

A 61 per cent cut in off-duty accidents among service men leaving Army Sixth Service Command posts on pass or furlough in month following distribution of off-the-job safety pamphlet.

A 26 per cent drop in accident frequency and 41 per cent in severity in various explosives plants.

15 to 55 per cent reductions in railroad grade-crossing accidents in 8 of the 9 states where special program has been put in operation thus far.

Reduction of training accidents to point where Army Air Forces are training 95 out of 100 pilots without injury of any kind.

Injury rates held constant, despite increasing employment and inexperienced workers, in several thousand plants making materials for Army, under supervision of Office of Provost Marshal General.

A 21 per cent reduction in home accident deaths in city of over a million population.

15 to 31 per cent reduction in farm accident work deaths in important agricultural states.

In the light of these examples, I think it fair to say that a good many lives and a great many millions of dollars, that otherwise would have been lost, have been saved.

Ned H. Dearborn Made President of N. S. C.

The new president of the National Safety Council is Ned H. Dearborn, who has been Executive Vice President for the past two years. The work Mr. Dearborn has done since becoming an official of the Council has been a valuable contribution to the safety movement, and he advances to the presidency with all of the attributes and earnest effort requisite to outstanding safety leadership.

In accepting the presidency, Mr. Dearborn spoke on the subject "Humans Must Be Humanitarians," The thought highlighting his address was that safety is a part of every individual's life—as much a part of it as any of one's regular habits. He said, "Essentially, the task in which the National Safety Council—and that means all of us here and thousands of others throughout the country—is engaged is that of integrating safety into the daily lives of 130 million people. In its broadest sense, this means making safety as much a part of individual life as brushing the teeth, washing the hands, keeping well, eating three meals."

▸▸▸ "The Importance of Safety to Women and the Importance of Women to Safety," was the subject of an informal address by Margaret Culkin Banning at the Annual Meet-

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Partial view of the Grey Room at the Sherman Hotel, Chicago, showing a part of the large gathering at the opening session of the Paper and Pulp Section.

ing of the Council on Tuesday morning. The speaker urged women to take greater interest in preventing accidents in the home. She covered practically every phase of safety as it interests women, and her address sparkled with humor and human interest.

At this meeting, proposed changes in the constitution and by-laws which were drafted at a meeting of the Council's Policy Committee in April, 1944, were voted on by the members of the Council. The members favored the Committee's proposed changes and voted to accept them. Among these changes, one of outstanding importance is the establishment as part of the Council's official structure, a group of business and civic leaders who would be concerned with general policies relating to financing and public relations. The new group of business and civic leaders will be described as the Board of Directors (consisting of not more than 35 members) elected at the annual Council meeting. This board will be responsible for finance and public relations, and for the general policies of the Council. The present Executive Board will remain under the same title. Its responsibilities will be to effectuate the policies of the Council, to direct its accident prevention activities, and prepare budgets.

Another change in the Council's corporate setup is that the maximum number of Trustees is increased from 21 to 35.

The meetings of the Safety Congress were divided among three Chicago hotels—the Sherman, the La Salle, and the Morrison.

PAPER AND PULP SECTION

Five sessions were held by the Paper and Pulp Section. The opening session on Tuesday afternoon and the closing session on Thursday afternoon were attended by a large representation of the delegates. On Wednesday afternoon, there were two sessions: one, a joint session of the Pulpwood Loggers Group, the Paper and Pulp Section, and Wood Products Section; the other session was held for Paper Products Plants.

This year, the Paper and Pulp Section enjoyed an innvocation in its presentation session. Until last year, the contest awards were presented at a luncheon meeting, but because of wartime conditions, the luncheon was omitted last year. This year, however, a dinner session was planned in connection with the presentations. This meeting was held on the evening of the first day. It was well attended and proved a most enjoyable get-together.

There was an overflow attendance at the first session of the Section on Tuesday afternoon. After opening the meeting, General Chairman J. Fred Berry gave his annual report to the Section.

The Chairman's Report

As your General Chairman for the past year, I want to report briefly the activities which have been carried on since our last meeting.

The Executive Committee held two meetings, one in Chicago, December 6, 1943 and one in New York, March 28, 1944, the attendance of which must be commended, due to these trying times of War, as each and every committee member, I know, had plenty of his own duties to do without any outside work; however, all gave time which could well have been utilized on his own job.

Last year was the first for an evening "Bull Session" which will be repeated again this year by popular request; however, it has been made part of the official program due to the fact that contest awards will be made, thereby conserving Thursday's meeting time and to allow those members to catch an early train where necessary.

Membership Committee

Russ Simpson as vice chairman will report for this committee later and I know you will be surprised and pleased as I was at the progress made during the year.

Program Committee

With Eddie Page as chairman and secretary, this committee has worked very hard to give us three days of interest and worthwhile subjects and I want to thank all of them personally at this time.

Contest Committee

As you know our sectional Contest is under the able Chairmanship of Scott Dowd and to "Scott," who will make his report later, I want to say, "Thanks, for another swell job."

News Letter

Julius Draper has done a good job for the second year and speaking as one of the past Editors I know that although we have over 275 participating mills in our Section, only a small

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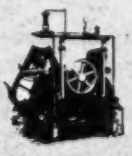
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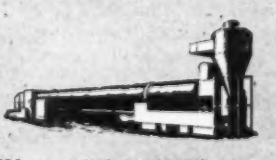
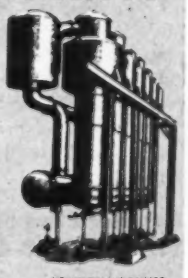

LOUISVILLE DRYERS, COOLERS, KILNS


CONKEY VACUUM EVAPORATORS

percentage sends in material, so therefore, it is up to the Editor to get the material the best he can.

Committees

Time is not available to go into detail on all committees; however, all have served well and it is with a sense of deep gratitude, I say, "Thanks for a difficult job, well done."

Safety Drive

As some you probably know the U. S. Department of Labor in cooperation with the American Paper and Pulp Association and a number of other agencies including the National Safety Council is sponsoring plans for an intensive safety drive in the paper industry during the months of October, November and December.

The Department of Labor has used a 30.0 frequency rates in some of their advance releases on the above drive; whereas, the rate for the two hundred contestants who participated in our Sectional Contest the average rate was 18.41 frequency which shows that organized safety work pays dividends. As the Paper and Pulp Industry consists of some 900 individuals plants, large and small, there is plenty of room for additional efforts and it is our hope that the above safety drive sponsored by the U. S. Department of Labor will be able to reach the mills which have no organized safety program, and are not affiliated with the National Safety Council.

Staff—NSC

In behalf of the Section, I offer sincere thanks to the National Safety Council for assistance and guidance given and I am certain the incoming General Chairman will greatly benefit from the assistance which will be given by Mr. Skipton, the Engineer assigned to our Section. He has been of great help to me and I do not hesitate to give him credit at this time.

The success this year of our Section was accomplished only by the co-operation of all members and officers and I want you to know that I deeply appreciate the honor of serving as your General Chairman the past year. It has been a privilege, and I know that with your new General Chairman we will go on with bigger and better results in eliminating accidents in the Paper and Pulp Section.

Accident Experience Review 1943-44

One of the interesting program features each year is the accident experience review as presented by F. W. Braun, chairman of the Statistics Committee. Some of the data which highlights Mr. Braun's report is of sufficient interest to evoke questions in the discussion period. This year was no exception. In his report, the

L. R. Simpson, who was elected to serve the Section as general chairman for the coming year. Mr. Simpson is with the Brown Paper Mill Co., Inc., Monroe, La.

speaker stated that the industry's frequency rate was up 4 per cent and the rise in severity was 5 per cent in comparison with 1942. He also said that this cannot be blamed entirely on the War. Both injury rates decreased quite steadily between 1926 and 1938, but since 1938 the trend has been reversed unfavorable results showed for each year, including the prewar years of 1939 and 1940.

Mr. Braun took advantage of this fact to point to the safety drive which was set up in the paper industry October 1 by the U. S. Department of Labor. During the discussion which followed, this subject drew considerable comment. In answer to many questions from the floor as to how records were to be kept for the Department of Labor Safety Drive, Mr. Braun stated that a booklet is available which gives complete information on this subject. The booklet is entitled "Accident Records for Industrial Plants." It is listed as No. 772, and may be obtained from the U. S. Bureau of Labor Statistics.

Safety Engineering

The keynote speaker at the opening session was Earle N. Lashmet, vice president of the Liberty Mutual Insurance Company. Speaking on the subject "Effectiveness in Loss Prevention," Mr. Lashmet made a stirring address in which he outlined an effective method of sales technique in approaching the safety problem. He believed that in trying to get people to accept safety, the safety salesman must (1) Become an expert on accident causes; (2) Learn what a salesman has to know in order to motivate people; (3) Be proud of his work as a safety engineer. *(Mr. Lashmet's address is published in full elsewhere in this issue.)*

New Officers

Following the discussion period, Chairman Berry asked A. Scott Dowd, chairman of the Nominating Committee to read the slate of officers the Committee had chosen for the coming year. After the report had been read, a unanimous vote from the floor accepted the following officers and committeemen to serve the Section for next year:

General Chairman—L. R. Simpson, The Brown Paper Mill Co., Inc., Monroe, La.

Vice Chairman in Charge of Membership—E. A. Page, Kimberly-Clark Corp., Neenah, Wis.

Secretary—H. P. Heubner, The Flintkote Co., New York, N. Y.

Program Committee—H. P. Heubner (Chairman), The Flintkote Co., New York, N. Y.; Ernest Augustus, The Mead Corp., Chillicothe, Ohio; Julius A. Draper, Consolidated Paper Corp., Ltd., Grand'Mere, P. Q., Canada; W. G. Etter, Personnel Dir., River Raisin Paper Co., Monroe, Mich.; George Nelson, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.

News Letter Editor—R. W. Croucher, Minnesota & Ontario Paper Co., International Falls, Minn.

Contest Committee—A. Scott Dowd (Chairman), Fritz Publications, Inc., Chicago; W. J. Melville, Nekoosa-Edwards Paper Co., Port Edwards, Wis.; B. D. Rogers, Bird & Son, Inc., East Walpole, Mass.

Data Sheet Committee—A. J. Tuccinardi (Chairman), The Ohio Boxboard Co., Rittman, Ohio; James J. McGivney, Brown Co., Berlin, N. H.; B. K. Wickwire, Longview Fibre Co., Longview, Wash.; H. H. Yoder, Gulf States Paper Corp., Tuscaloosa, Ala.; C. J. Munk, Racquette River Paper Co., Potsdam, New York.

Engineering-Safe Practices Committee—E. F. Troop (Chairman), P. H. Glatfelter Co., Spring Grove, Pa.; E. G. Amos, American Pulp & Paper Ass'n, New York, N. Y.; M. W. Dun-

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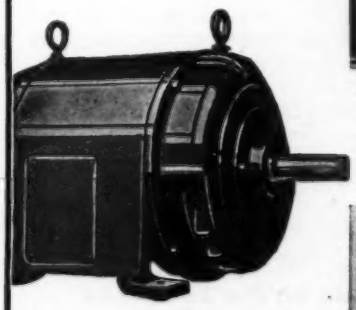
SLOW SPEEDS (FOR INCHING, THREADING, INSPECTION)

Applying these functions to boost production and improve quality is APPLICATION ENGINEERING. That's our business.



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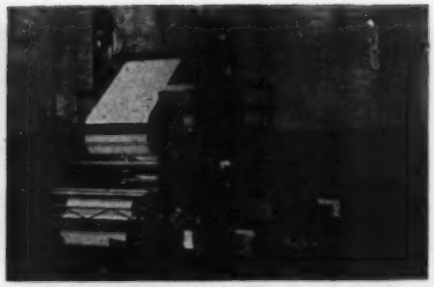

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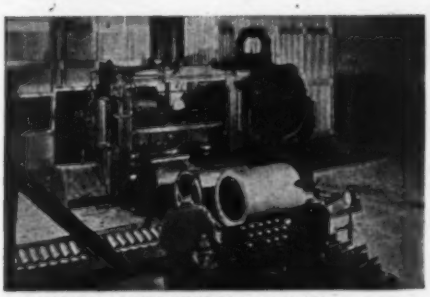

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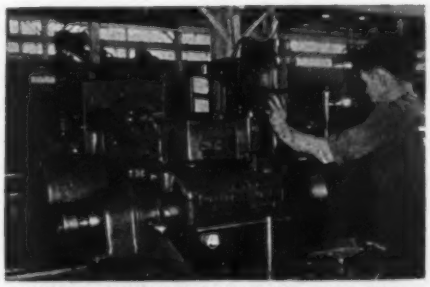

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LEFT—J. Fred Berry, general chairman of the Section, who presided at most of the sessions. CENTER—Earle Lashmet, vice president Liberty Mutual Insurance Co., who spoke at the opening session of the Section on Tuesday. RIGHT—D. B. Chant, who presided at the symposium "Safety as I See It," which was the climax ending of the meetings of the Section.

dore, Beloit Iron Works, Beloit, Wis.; O. R. Hartwig, Crown Zellerbach Corp., Portland, Ore.; E. C. Jacobs, American Mutual Liability Insurance Co., New York, N. Y.; L. C. Smith, Thilmany Pulp & Paper Co., Kaukana, Wis.

Health Committee—Dr. Paul Brehm (Chairman), State Board of Health, Madison, Wis.; Mrs. Lillian Brewer, Oswego Falls Corp., Fulton, N. Y.; Dr. Louis H. Frechtling, Champion Paper & Fibre Co., Hamilton, Ohio; Dr. James D. Stark, Hammermill Paper Co., Erie, Pa.

Safety Instruction Card Committee—Claude T. Urevig (Chairman), Scott Paper Co., Chester, Pa.; A. S. Cook, Quebec Pulp & Paper Safety Ass'n, P. Q., Canada; C. A. Howard, West Virginia Pulp & Paper Co., Charleston, S. C.; G. C. Kerr, Quebec North Shore Paper Co., Baie Comeau, Quebec, Canada; B. J. McCloskey, Hoberg Paper Mills, Green Bay, Wis.; Gordon E. Mortenson, Kimberly-Clark Corp., Neenah, Wis.

Statistics Committee Chairman—Fred W. Braun, Employers Mutuals, Wausau, Wis.

Visual Education Committee—Reinold Ganser (Chairman), Marathon Corporation, Rothschild, Wis.; R. A. Day, A. P. W. Paper Co., Albany, N. Y.; George Gibb, Canadian International Paper Co., Gatineau, Quebec, Canada; J. R. Latter, Anglo-Canadian Pulp & Paper Mills, Ltd., Quebec, Canada; D. A. McAlary, Fraser Companies, Ltd., Edmundston, N. B., Canada.

Logging Operations Representative—J. E. Cantin, Quebec North Shore Paper Co., Baie Comeau, Que., Canada.

Paper Products Plants Representative—G. J. Bienvenue, Gaylord Container Corp., Bogalusa, La.

Off-the-Job Accident Committee—J. Fred Berry (Chairman), Alton Box Board Co., Box 276, Alton, Ill.; Roland W. Richardson, The Gardner-Richardson Co., Lockland, Ohio; Walter A. Gleason, Hammermill Paper Co., Erie, Pa.

Dinner Meeting

At the dinner meeting on the evening of the first day a large number of mill representatives gathered for the presentation of the awards in the paper industry contest. This part of the program always draws keen interest, particularly from those who know their record stands at the top or who hope for some recognition for their work during the past year. The dinner provided a bright spot for handshaking and "how-do-you-do's" and exchanges of experiences during the past year filled the conversation at many of the tables. After dinner, Chairman Berry asked A. Scott Dowd, chairman of the Contest Committee to read the final report of the 1943-1944 Paper Industry Safety Contest.

Data on the 1943-1944 Paper Industry Safety Contest

The 20th National Safety Contest of the Paper Industry that ended June 30, 1944, had an enrollment of 200 participants—the highest number of units that has been recorded in these annual contests.

The four groups of paper and pulp mills, divided into brackets of specified numbers of man-hours per month, and the paper and board Remanufacturing Division, were quite even in size.

Group A, consisting of the largest paper and pulp mill units, averaging more than 130 thousand man-hours monthly, had an enrollment of 51.

Group B, with mills averaging 60 to 130 thousand man-hours monthly, had an enrollment of 41.

Group C, mills averaging 30 to 60 thousand man-hours monthly, had an enrollment of 40.

Group D, mills averaging 6 to 30 thousand man-hours monthly, had an enrollment of 31.

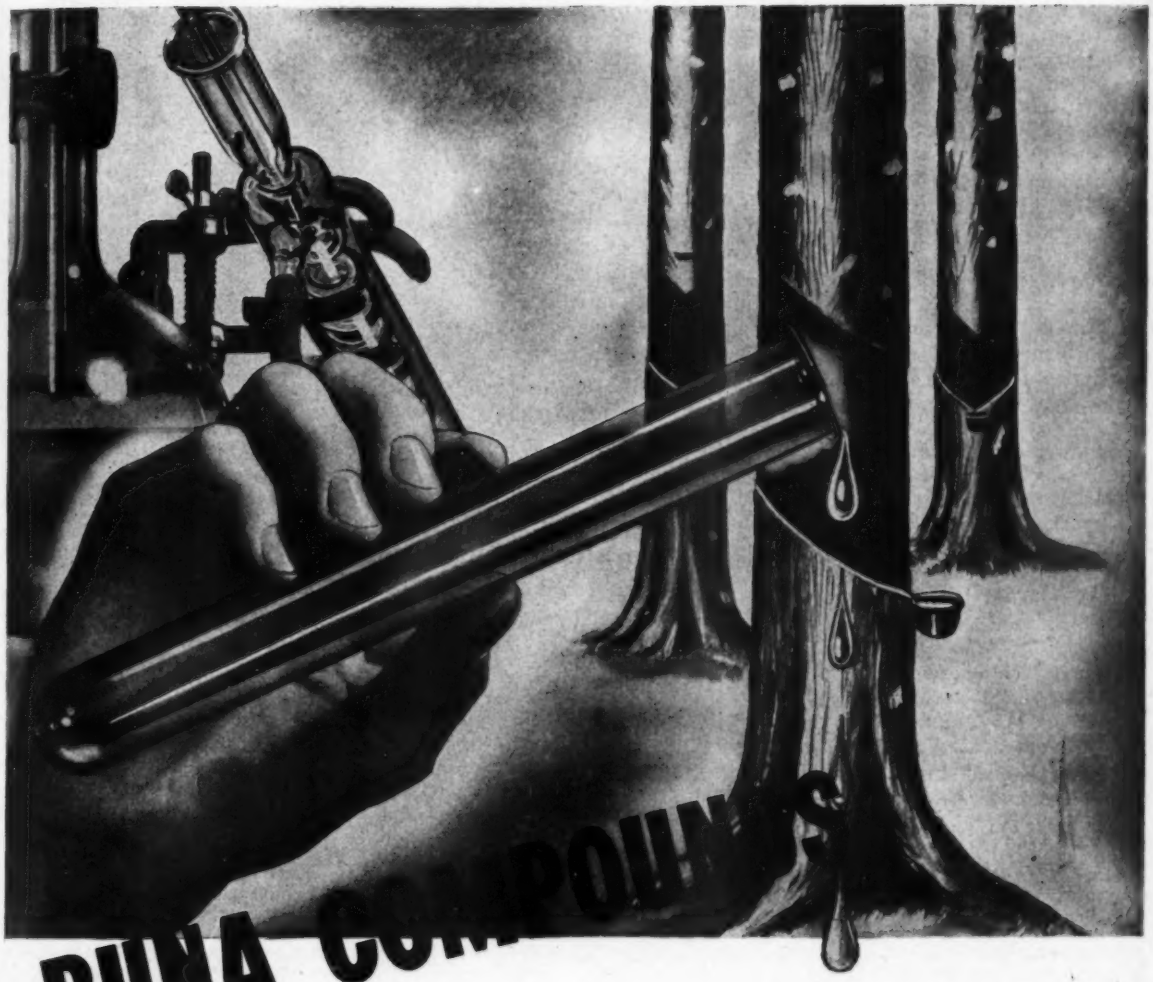
The Paper and Board Remanufacturing Division contained 37 contesting units.

Frequency rates of all these contestants—by which scores were ranged, averaged 18.41. Remanufacturing plants had lower rates than those of the paper and pulp mills. The average rate of identical plant contestants in this Remanufacturing Division was 3 per cent lower than the record of last year, while all groups in the Paper and Pulp Mill Division showed increases in their averages of identical mill contestants.

Observing the records in the Final Report which you have at your plates, we find that *Group A* has the lowest average frequency rate—16.71. Fourteen of these 51 contestants had rates no higher than 10, and eleven of these fourteen reduced their rates of the previous year.

Group B ranked second in the Paper and Pulp Division with an average of 17.61. Of 41 mill contestants, there were seventeen whose rates were no higher than 10, and eleven of these reduced their rates of the previous year.

The most unfortunate record was that of *Group C*, the average rate of



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(Curing and non-curing stocks)

Longtime specialists in the fields of Combining, Coating and Impregnating Compounds, the UBS Laboratories are ideally set up to develop the particular Buna Compounds your operations require *Write today, describing your paper Impregnation Problems*

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which was 29.98. Only 3 in this group of 40 contestants made rates below 10; and but one of them reduced its previous year's rate. The identical mill contestants average in *Group C* was 32 per cent higher than it was in the previous competition.

Group D's average frequency rate was 24.76. Eight of these 31 contestants made marks no higher than 10, three reduced their previous year's record, and two equaled their previous year's perfect score.

The average rate made by the Remanufacturing Division was 17.29. Ten of these 37 contestants made records no higher than 10, five reduced their previous records, and three equaled their previous year's perfect scores.

There were seven perfect records in the Contest. The Ashland, Wisconsin Division of the Marathon Corporation (Group D), worked the most hours without a disabling injury, in the Paper Mills Division. Having had no lost-time accident since October 9, 1940, this mill completed through August 19, 1944, a perfect record of 3 years, 10 months and 10 days, or a total of 1,361,732 man-hours.

The Riley, Maine, groundwood pulp mill of International Paper Company (Group D) has completed two years without a lost-time accident.

Bay West Paper Company, Green Bay, Wisconsin, Remanufacturing Division, has earned a salvo by its superb record of seven consecutive years without a lost-time accident.

Forty-three plants were winners of Reduction Award Certificates. In accordance with Contest Rule No. 8, these Certificates are awarded to units (except to those in first, second and third place) for a frequency rate below the group average, and showing a reduction by comparison with their rates in the previous Contest.

The 1944-1945 Contest is in its fourth month. No changes have been made in the rules, and all participants in the last Contest have been enrolled in the present one.

N.S.C. Trophies and Certificates

In addition to the regular trophies and certificates awarded by the National Safety Council, the contest rule which provides for the award of certificates of achievement brought in a large number of winners this year. As mentioned in the data read by Mr. Dowd, 43 mills were entitled to this honor. For a number of years, J. E. Long, a past president of the Council, has presented the NSC awards in the Paper and Pulp Section. Due to the large number of certificates to be awarded, there was ample time between presentations, acceptances, and applause for Mr. Long to entertain and add considerable humor and repartee to this occasion. He has become very well known to regular attendants at these meetings, and he was missed from the meeting last year.

Contest Winners

Trophies

Group A
The Flintkote Co. (Pioneer Div.)
Los Angeles, Calif.

Group B
Quebec North Shore Paper Co.
Baie Comeau, Quebec, Canada

Group C
Strathmore Paper Co. (Woronoco Mills)
West Springfield, Mass.

Group D
Marathon Corp. (Ashland Div.)
Ashland, Wis.
Spaulding Fibre Co., Inc.
No. Rochester, N. H.
International Paper Co.
Riley, Maine

Division II (Remanufacturing)
Thilmany Pulp & Paper Co. (Bag Mill) Kaukauna, Wis.
South West Box Co.
Sand Springs, Okla.
Bay West Paper Co.
Green Bay, Wis.

Certificates

Group A
The Champion Paper & Fibre Co.
Hamilton, Ohio
Consolidated Paper Corp., Ltd.
(Laurentide Div.) Grand-Mere, Quebec, Canada

Group B
Price Brothers & Co., Ltd.
River Bend, Quebec
Kimberly-Clark Corp.
Niagara, Wis.

These delegates represented mills that won NSC trophies in the Contest. Left to right: B. H. Metternich, Marathon Corporation (Ashland, Wis.); H. H. Dyke, International Paper Co. (Riley, Me.); Ernest Dutcher, Pioneer Div., The Flintkote Co. (Los Angeles, Calif.); L. C. Smith, Thilmany Pulp & Paper Co. (Kaukauna, Wis.); J. A. Long, Bay West Paper Co. (Green Bay, Wis.); Karl Kiedaisch, South West Box Co. (Sand Springs, Okla.); N. B. Goodrich, Strathmore Paper Co. (West Springfield, Mass.); G. C. Kerr, Quebec North Shore Paper Co. (Baie Comeau, Que.).

"Performance means everything to me"

"The **cost** of getting performance is important," says this mill man, "but it comes second."

While the initial cost of the JONES-BERTRAMS BEATER is more than an ordinary beater, you not only get the highest degree of beater performance, but long-term economies as well . . . making it far less costly in the long run.

Jones

GEARED FOR WAR PRODUCTION

E.D. JONES & SONS COMPANY-PITTSFIELD, MASS.

Builders of Quality Machinery for Paper Mills

A group of representatives from mills that were awarded certificates in the contest. **Front Row (Seated, L to R):** *James Hastings, Port Huron Pulp & Paper Co., Port Huron, Mich. . . . R. S. Wells, Kimberly-Clark Corp., Niagara Falls, N. Y. . . . H. H. Aderhold, Marathon Corp., Menasha, Wis. . . . Don Severson, Neenah Paper Co., Neenah, Wis. . . . John W. Kelly, Kieckhefer Corp., Delair, N. J. . . . Carl R. Kiha, The Champion Paper & Fibre Co., Hamilton, Ohio . . . J. A. Draper, Consolidated Paper Co., Montreal, Que.* **Second Row:** *Erich Bach, Bird & Son, Chicago . . . Raoul P. Beaudette, International Paper Co., Palmer, N. Y. . . . E. M. Cowling, Fraser Paper, Ltd., Madawaska, Maine . . . G. E. Brown, Price Bros. & Co., Ltd., Quebec . . . Wilfred Desjardin, Kimberly-Clark Corp., Niagara Falls, N. Y. . . . Arthur L. Ziess, Certain-teed Products Corp., E. St. Louis, Ill. . . . R. J. Hutchison, The Flintkote Co., E. Rutherford, N. J. . . . J. G. Young and Marshall F. Meyer, Bird & Son, Chicago.* **Third Row:** *Walter Gleason, Hammermill Paper Co., Erie, Pa. (The man next Mr. Gleason and the one next him—with pipe—got away before their names were recorded. Sorry we didn't get their names, but we think their pictures turned out very well.) . . . George Adams, International Paper Co., New York City. . . K. Buss, Kimberly-Clark Corp., Appleton, Wis. . . . Walter P. Frese, Container Corp. of America, Chicago.*

Group C

Certain-teed Products Corp.
East St. Louis, Ill.

Price Brothers & Co., Ltd.
(Jonquiere Mill) Quebec, Can.

Certificate of Achievement

Group A

Anglo-Newfoundland Development Co., Ltd., Grand Falls, Newfoundland

Consolidated Paper Corp., Ltd., Wayagamack Div.

Anglo-Canadian Pulp & Paper Mills, Ltd.

Hollingsworth & Whitney Co., Algonquin & Taconnet Mills

Marathon Corporation, Menasha, Wis.

Price Brothers & Co., Ltd., Kenogami, Quebec, Can.

Kimberly-Clark Corp., Niagara Falls Mill

Bird & Son, Inc., East Walpole, Mass.

International Paper Co., Palmer, N. Y.

Kieckhefer Container Co., Delair, N. J.

Hammermill Paper Co., Erie, Pa.

The Gardiner-Richardson Co., Middletown, Ohio

West Virginia Pulp & Paper Co., Mechanicville, N. Y.

West Virginia Pulp & Paper Co., Luke, Md.

Group B

St. Croix Paper Co., Woodland, Maine

Rhinelander Paper Co., Rhinelander, Wis.

The Champion Paper & Fibre Co., Houston Div.

Consolidated Paper Co., Ltd., Port Alfred Div.

Wood Conversion Co., Cloquet, Minn.

Neenah Paper Co., Neenah, Wis.

Fraser Paper, Ltd., Medawaska, Maine

United States Gypsum Co., Greenville, Miss.

International Paper Co., North Tonawanda, N. Y.

Group C

Whiting Plover Paper Co., Stevens Point, Wis.

Container Corporation of America, Carthage, Ind.

Esleek Manufacturing Co., Turners Falls, Mass.

The Crystal Tissue Co., Middletown, Ohio

Port Huron Sulphite & Paper Co., Port Huron, Mich.

Group D

United States Gypsum Co., Oakmont, Pa.

Hollingsworth & Whitney Co., Abenaquis Mill

The Wisconsin River Paper & Pulp Co., Stevens Point, Wis.

Central Fibre Products Co., Tama, Iowa

American Asphalt Roof Corp., Kansas City, Mo.

United States Gypsum Co., North Kansas City, Mo.

Division II—Paper and Board Remanufacturing

The Flintkote Co., East Rutherford, N. J.

Bird & Son, Inc., Shreveport, La.

Bird & Son, Inc., Norwood, Mass.

Container Corporation of America, 35th St. Div., Chicago

Kimberly-Clark Corporation, Atlas Mill

Union Bag & Paper Corporation, Savannah, Ga.

Bird & Son, Inc., Chicago, Ill.

Container Corporation of America, Rock Island, Ill.

Langit Corrugated Box Co., Chicago

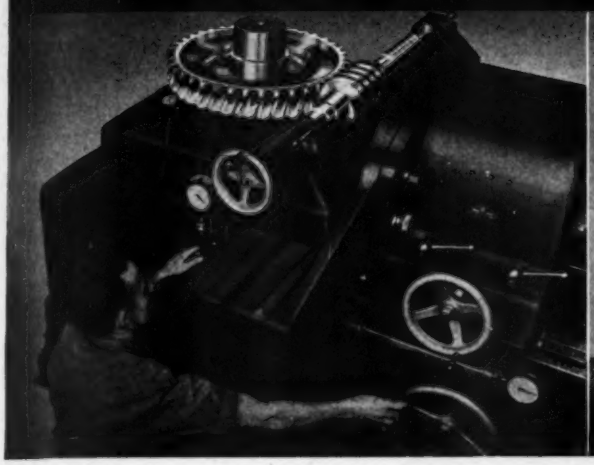
Edward Benton Fritz Memorial Trophy

When the trophies and certificates had all been presented, Chairman Berry then said that although many contestants had an inkling of their prize before the award was made, there was always the big surprise in store of all when the Edward Benton Fritz Memorial Trophy was to be awarded, for no one but the judges knew who the recipient would be. This trophy is awarded each year by Fritz Publications, Inc., to the contest winner which a board of judges rules has made the most outstanding record for the year. A. Scott Dowd, president and general manager of Fritz Publications, Inc., was asked to announce the winner of the major trophy. Mr. Dowd said:

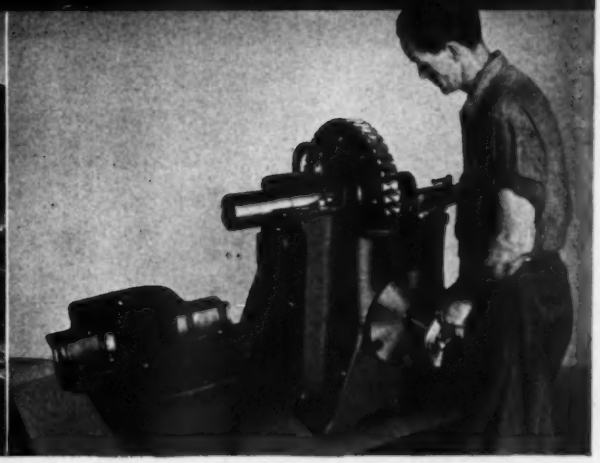
"Winner of the Grand Prize, the Edward Benton Fritz Memorial Trophy, donated by the publisher of THE PAPER INDUSTRY AND PAPER WORLD, Chicago, and awarded by a majority vote of five judges to the eligible unit which in their opinion has established the safety achievement among 163 paper and pulp mill participants in the contest upon frequency, man-hours worked, physical conditions, and other contributing factors, is, for the second consecutive year, the *Pioneer Division* of *The Flintkote Company*, Los Angeles, California, whose record as winner of Group A has been judged the best achievement in the 1943-1944 Contest.

"Flintkote's Pioneer Division employed during the term of the Con-

CHECKED for TOOTH CONTACT



1.—Checking tooth contact with worm and gear located at exact center distances, checked to within 1/10,000th of an inch.



2.—Checking tooth contact by means of "bearing blue" after assembly.

BOTH *BEFORE and AFTER* ASSEMBLY

Before assembly, every De Laval Worm Gear is tested on the machine shown at the left, in which it is accurately mounted with the center line of the gear and the center line of the worm correctly spaced and at true right angles. Under these conditions the tooth contact is observed and the back lash accurately measured.

After assembly in the gear case, tooth contact is re-checked by means of bearing blue to assure correct adjustment. Such checking and holding center distances within close limits assures satisfactory operation of De Laval Worm Gear Speed Reducers, and facilitates installation when De Laval Worm and Gear sets are purchased for use in other machinery.

Specifications alone do not make a worm gear.

1147

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WORM GEAR DIVISION

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The Edward Benton Fritz Memorial Trophy, the major award in the Paper Industry Safety Contest, is presented by Mrs. Annie C. L. Fritz to Ernest Dutcher, representative of the Pioneer Division of The Flintkote Co., Los Angeles, Calif.

test an average of 1,120 employees, working a total of 2,737,809 man-hours.

For seven months of the Contest period, September 3 to April 5th, the mill worked a total of 1,609,940 man-hours without a lost-time accident. With an average tournover in personal of 19 per cent, it completed the year with a frequency of 1.83.

"We are told that management of this company, from the president on down, is vitally interested in the elimination of accidents, and to this end, has set up an effective, well-organized safety program."

Mr. Dowd then introduced Mrs. Annie C. L. Fritz, vice president and treasurer of Fritz Publications, Inc. Mrs. Fritz has shown a deep personal interest in the cause of safety, and in presenting each year the Edward Benton Fritz Memorial Trophy, she is endeavoring to carry on a part of the work which had the wholehearted support of her late husband.

In her presentation remarks, Mrs. Fritz pointed out that the end of the war will not bring a letting-down period in the cause of safety—rather it will require more care and study on the part of management to deal with the large number of servicemen who will be returned to industry. She stressed the need for sympathy and understanding for these veterans, and a study of their special needs.

Mrs. Fritz then presented the major trophy to Ernest Dutcher, of the Pioneer Division of The Flintkote Company, Los Angeles, California. Mr. Dutcher responded sketching briefly the safety work in his company, which is taken very seriously from management down to the newest employee. *(Please see illustration of the major trophy on page 822.)*

After the dinner meeting, a number of the delegates remained for an informal "Bull Session," which had not been regularly scheduled as a part of the program.

WEDNESDAY AFTERNOON

The attendance on the afternoon of the second day was divided between two sessions which were held simultaneously. Each session was well attended. One session was a joint gathering of Pulpwood Loggers, Paper and Pulp, and Wood Products.

Session with Loggers

At the joint session with the Pulpwood Loggers Group, J. E. Cantin, safety director, Quebec North Shore Paper Company, Baie Comeau, Quebec, presided. The first address before that group was on the subject "Pulp Cutting Accidents," by R. I. Young, logging superintendent, The Ontario-Minnesota Pulp & Paper Company, Ltd., Fort Frances, Ontario.

The speaker literally took the audience into the woods and showed them the characteristics of a lumberjack. He said the lumberjack still is a rugged, two-fisted critter, and that his temperament and reactions make up the most complicated and unpredictable behavior that one would encounter in any vocation. He made a strong plea for more down to earth language in teaching safety. Quoting some safety instructions on felling trees that were couched in office language, Mr. Young revised it in the vernacular of the logging camp to read like this: "Say, before you go in there to knock that tree down, look up and see if there's somethin' there that's gonna make your wife a widow. If there is, be sure you're in the clear."

Urging safety men to get into the woods and spread their teachings in logging camp language, Mr. Young paid this tribute to the lumberjacks: "The real jack, the skilled or semi-skilled worker, is a proud and capable craftsman with a wonderful sense of humor. He is an alert, loyal, and easily-taught individual. Alas, his shadow is fast fading from the land. He is the backbone of a multimillion-dollar industry, the largest in our country (Canada), so we will do well to court his favor."

The subject of "Safety in West Coast Logging," was covered at the same session by Ted Kepner, logging safety supervisor, Crown Zellerbach Corporation, Cathlamet, Washington. The speaker covered his subject progressively, treating all of the safety aspects step by step. He spoke of a special committee appointed by the WLB to work out a program from a safety directive issued by the Labor Board to the lumbering and logging industry of the Pacific Northwest. *(Mr. Kepner's address will be found in toto elsewhere in this issue.)*

Both of the addresses at this session were followed by lively discussion.

Paper and Paper Products Session

Presiding at this session was A. J. Tuccinardi, director of personnel, The Ohio Box Board Company, Rittman, Ohio. Mr. Tuccinardi opened the meeting with an informal talk after which he called upon the first speaker, Sam Yates, superintendent of the Car-

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Our experience in building conveyor belts for highly specialized types of service covers a wide range of operating problems and enables us to guarantee that BWH belts give exceptional service.

BWH conveyor belting, made by the Rotocure Process of Continuous Vulcanization, is uniformly vulcanized, uniformly stretched, and will be uniform in service. Maximum efficiency and minimum cost in actual use are the first considerations in the manufacture of BWH belting.

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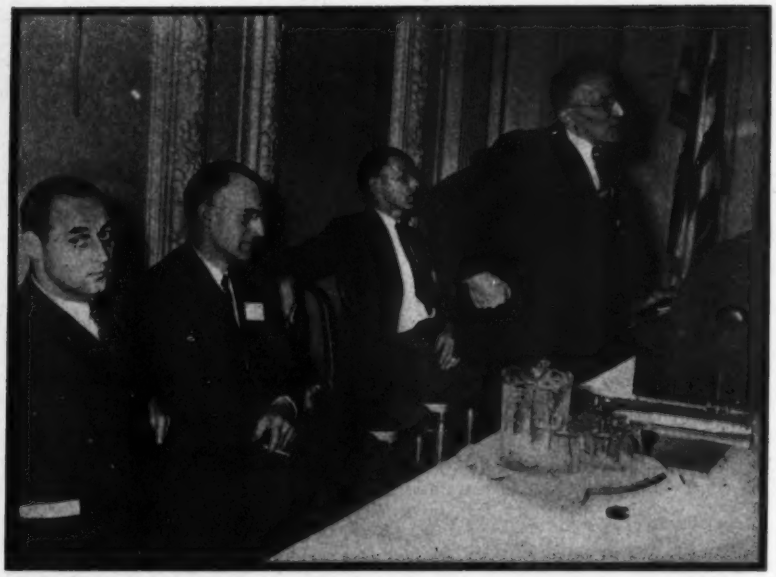


The participants who took part in the symposium on Thursday afternoon. (L to R) Harrison F. Dunning, assistant to the vice president, Scott Paper Co.; D. B. Chant, secretary-engineer, Ontario Pulp & Paper Makers' Safety Ass'n, Toronto, Ont., who presided; H. J. Kokke (speaking), Kimberly-Clark Corp. (Kimberly, Wis.), and William Ritchie, print room foreman, Marathon Corporation (Menasha, Wis.).

ton Division, The Gardner-Richardson Company, Lockland, Ohio. The subject of Mr. Yates's talk was "The Codification of Carton Plant Safety." Touching on the need for codification, Mr. Yates said that the first leg on the table of safety handling is to "codify" your safety methods in a direct classified manner suitable for those who will use it but not necessarily exactly the same as the "code" submitted. He used the term "codify" as being broader than "standardize," but did not claim it to be the ideal title. As to who should write the code, the speaker believed the code should be written by management with the help of labor, and before acceptance, it should be satisfactory to both. *(An abstract of this address will be published in an early issue in the section devoted to "Convention Papers . . . Abridged.")*

Following a discussion of the paper given by Mr. Tuccinardi, there was a special presentation on the subject of "Visual Safety," by Fred Waugh, superintendent, Corrugated Container Division, The Ohio Box Board Company, Rittman, Ohio. Mr. Waugh spoke extemporaneously using interpretive slides.

Three Slants on Safety

The last session on Thursday afternoon was devoted entirely to a symposium on the subject "Safety as I See It." This meeting was presided over by D. B. Chant, secretary-engineer, Ontario Pulp & Paper Makers' Safety Association, Toronto, Ontario, Canada.

The first participant, who spoke for the *Workman,* was H. J. Kokke, Kimberly-Clark Corporation, Kimberly, Wisconsin. The speaker touched the subject of health insurance, which he said should be included in the cost of living as much as food, clothing or any other item. "The time is now ripe for action," he said, "because if we don't act of our own free will, we run the risk of having the state or national government step in and do what we should have done for ourselves."

In pointing out various steps that industrial plants can take to provide safe working conditions, Mr. Kokke said: "The workers believe that if there were half as much effort spent on air conditioning as on production, we would have more satisfied men, and in many cases production actually would be increased. Doing away with fumes, gases, and heat makes for fewer accidents and happier living."

Speaking for the *Foreman,* William Ritchie, print room foreman, Marathon Corporation, Menasha, Wisconsin, felt that the foreman's best safety plans were often jeopardized by a multitude of circumstances. He pointed to the foreman's need for co-operation on the part of every employee, as well as the men higher up, if he, the foreman, is to enforce safe practices. Mr. Richie closed with the suggestion, "Make the employee work for what he gets, the same as on the production line. Let him 'Earn More, More Safely.' "

The third and last paper on the symposium was from *Management.* The address was made by Harrison F. Dunning, assistant to the vice president, Scott Paper Company, Chester, Pennsylvania. Mr. Dunning expressed the belief that never was there a better time to follow up the wartime experience with the groundwork of a comprehensive safety program.

Listing four points, he said:

"First—Some 12 million men in our country have been educated to new high standards of personal fitness through their Army and Navy physical examinations, through their anti-disease shots, and their physical training activities.

"Second—Many of these same 12 million men have seen their buddies horribly wounded—have learned first hand what the loss of an arm or a leg or an eye means to a man.

"Third—The mothers, fathers, wives, sisters and brothers of these men have lived for months and years in apprehension and fear of injury and death to their loved ones. Life and the bodily members which makes possible a full, rather than a partial life, have become more precious to everyone.

"Fourth—Industry in general has been forced to accept the physically-handicapped worker on an equal basis with the non-handicapped, and these fine and courageous men and women have, during the war period, stood as a constant and daily reminder to all their fellow workers of the advantages of accident-free work.

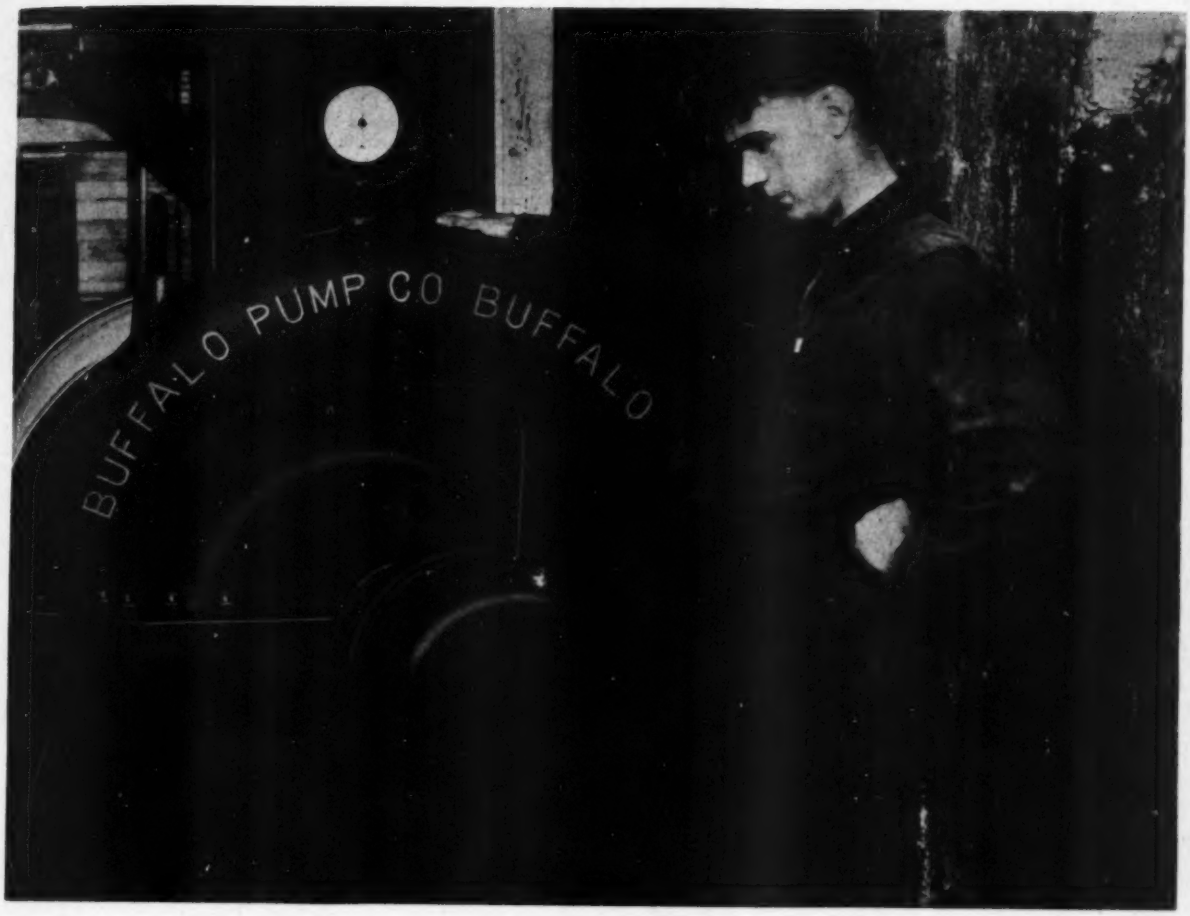
"As a consequence, we have almost our entire working population in possession of a new awareness of the importance of life and limb, prepared to guard more jealously than ever before the heritage of full physical equipment, and therefore, ready and willing to play an even larger part in making an outstanding safety record."

(The complete text of Mr. Dunning's address will be found elsewhere in this issue.)

Following the addresses, there was a spirited discussion, with many questions put to each of the speakers by those present.

Before adjournment, Retiring Chairman Berry took charge of the meeting and thanked all of the officers, committee members, and the members of the Section for the splendid co-operation he had received during the past year. He introduced L. R. Simpson, the Section's Incoming Chairman.

As this Section scattered to return to the job of making the home front safe, the theme of the entire Safety Congress—"Dedicated to Victory"—became a benediction.



This 5500 gpm Buffalo Pump supplies fresh water from river to mill.

Installed in 1922

"This pump has been a reliable piece of equipment."

The Superintendent of a large paper mill makes that statement about the Buffalo pump illustrated above. Nothing particularly unusual or spectacular about the service—just 5500 gpm at 30 lbs.—clear water—but the pump has been running for 22 years—and our records show no orders for repairs.

After all—when you buy pumps, after you've selected the type you need—what you really want is reliable performance. Why not assure yourself of this by buying "Buffalo"?

Send for a binder of Buffalo Pumps showing the complete line. It belongs in your data file.

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Canada Pumps, Ltd., Kitchener, Ont.

ARMY E NAVY

"Buffalo" PAPER STOCK PUMPS

LIBERTY MUTUAL GIVES AWARDS TO 3 MILLS

At a conference held in Springfield, Massachusetts, September 21, attended by 375 western Massachusetts business and industrial leaders, three paper companies received Liberty Mutual awards for outstanding records in lost-time accidents.

The three companies were:

Strathmore Paper Company, No. 1 Mill, Woronoco, Mass.

Old Colony Envelope Company

U. S. Envelope Company

Safety flags were presented to representatives of the three companies by S. Bruce Black, president of Liberty Mutual. For its record of seven and one-half years—1,777,000 man-hours—without a lost-time accident, the Strathmore Woronoco mill received an award of "excellence."

The conference was called by the insurance company to discuss with employers the latest developments in the conservation of manpower through industrial medical hygiene, rehabilitation of injured workers and re-employment of the physically handicapped, and the operation of Liberty Mutual's Rehabilitation Center in Boston, where, through physical, occupational, and recreational therapy, men and women who have been injured in industrial accidents are rehabilitated so they can return to their jobs.

◆

▶▶▶ INDUSTRIAL SAFETY equipment and clothing was on display in the Exhibit Hall of the Hotel Sherman in Chicago, during the Annual Safety Congress held October 3-5. There was an array of military exhibits, too, which drew the attention of a large number of servicemen who were not attending the meetings of the Congress.

◆

SAFETY SCORES

▶▶▶ FIFTY-ONE MILLS started the 1944-45 Paper Industry Safety Contest with a perfect record. The following list shows returns for the first two months of the new contest which began June 30, 1944. Twenty-three new contestants enrolled in this contest.

Division I—Pulp and Paper Mills

Group A

The Flintkote Co. (Pioneer Div.) Los Angeles, Calif.

Price Bros. & Co., Ltd., Riverbend, P. Q.

Group B

Ontario Paper Co., Ltd., Thorold, Ont.

Kimberly-Clark Corp. (Niagara Mill) Niagara, Wis.

Mersey Paper Co., Ltd., Liverpool, Queens Co. N. S.

P. H. Glatfelter Co., Spring Grove, Pa.

The Ontario-Minnesota Pulp & Paper Co., Ltd., Kenora Paper Div., Kenora, Ont.

*Crown Zellerbach Corp. (Washington Pulp & Paper Corp. Div.) Port Angeles, Wash.

Group C

Price Bros. & Co., Ltd., Jonquierre Mill, P. Q.

*Southern Kraft Div. of International Paper Co., New Haven, Pa.

Certain-teed Products Corp., Savannah, Ga.

Certain-teed Products Corp., E. St. Louis, Ill.

Container Corp. of America, Carthage, Ind.

Esleeck Manufacturing Co., Turners Falls, Mass.

Group D

*Central Fibre Products Co., Tama, Iowa.

*Central Fibre Products Co., Vincennes, Ind.

Certain-teed Products Corp., Kansas City, Mo.

Strathmore Paper Co. (Woronoco Mill No. 2) W. Springfield, Mass.

American Writing Paper Corp. (Nonotuck Div.) Holyoke, Mass.

Marathon Corp. (Ashland Div.) Rothschild, Wis.

United States Gypsum Co., Oakmont, Pa.

Ward Paper Co., Merrill, Wis.

Rogers Fibre Co., Inc., Bar Falls, Me.

Certain-teed Products Corp., Buffalo, N. Y.

Spaulding Fibre Co., Inc. (Milton Plant) North Rochester, N. H.

*Central Fibre Products Co., Denver, Colo.

Strathmore Paper Co. (Woronoco Mill No. 1) West Springfield, Mass.

Central Fibre Products Co., Inc., Mt. Carmel, Ill.

International Paper Co., Riley, Me.

Spaulding Fibre Co., Inc. (Hayes Plant) Rochester, N. H.

E. I. du Pont de Nemours & Co., Inc., Newhall, Wilmington, Del.

Division II—Paper and Board Remanufacturing

Scott Paper Co., Chester, Pa.

The Flintkote Co., Chicago Heights Plant, Ill.

Bird & Son, Inc. (Roofing Plant) Norwood, Mass.

A. Geo. Schulz Co., Milwaukee, Wis.

Container Corp. of America, Cleveland, O.

Ft. Wayne Corr. Paper Co., Hartford City, Ind.

*Orchard Paper Co., St. Louis, Mo.

Container Corp. of America, Rock Island, Ill.

Lanzit Corrugated Box Co., Chicago.

Ft. Wayne Corr. Paper Co., Chicago.

Container Corp. of America, Baltimore, Md.

Bird & Son, Inc., Shreveport Roofing Plant, Shreveport, La.

Bird & Son, Inc. (Roofing Plant) Chicago.

South West Box Co., Sand Springs, Okla.

Thilmany Pulp & Paper Co. (Bag Mill) Kaukauna, Wis.

International Cellucotton Products Co., Memphis, Tenn.

Southwest Corrugated Box Co., Fort Worth, Texas.

Iowa Fibre Box Co., Keokuk, Iowa.

Kimberly-Clark Corp. (Atlas Mill) Appleton, Wis.

Bay West Paper Co., Green Bay, Wis.

*August reports missing.

Mills that Have Won the Major Trophy in The Paper Industry Safety Contest

Twenty years ago the first Major Trophy given in the contest among mill members of the Paper and Pulp Section of the National Safety Council was awarded by *The Paper Industry* magazine to the Nekoosa-Edwards Paper Company, Port Edwards, Wisconsin. This contest lasted but one month. The succeeding contest ran for eight months; thereafter for six months until 1932 when the contests were extended to a full year. Since 1932, the awards have been given for a twelve-month record.

In 1939, *The Paper Industry* Major Trophy became the Edward Benton Fritz Memorial Trophy, awarded by Fritz Publications, Inc., publisher of The Paper Industry and Paper World.

The twenty major trophies awarded since 1925 have been won by the following mills:

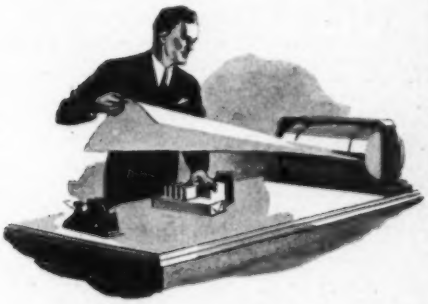
1925	Nekoosa-Edwards Paper Company, Port Edwards, Wisconsin
1926	Kimberly-Clark Corporation, Neenah, Wisconsin
1927	International Paper Company, Riley, Maine
1928	St. Croix Paper Company, Woodland, Maine
1929	Kimberly-Clark Corporation, Niagara Falls, New York
1930	The Crystal Tissue Company, Middletown, Ohio
1931	The Champion Coated Paper Company, Hamilton, Ohio
1932	Cornell Wood Products Company, Cornell, Wisconsin
1933	St. Croix Paper Company, Woodland, Maine
1934	St. Croix Paper Company, Woodland, Maine
1935	St. Croix Paper Company, Woodland, Maine
1936	Hollingsworth & Whitney Company, Waterville, Maine
1937	Bird & Son, Inc., Philipsdale, Rhode Island
1938	Anglo-Canadian Pulp & Paper Mills, Ltd., Quebec
1939	Anglo-Canadian Pulp & Paper Mills, Ltd., Quebec
1940	Strathmore Paper Company, Woronoco, Massachusetts
1941	The Mead Corporation, Nashville, Tennessee
1942	U. S. Gypsum Company, North Kansas City, Missouri
1943	The Flintkote Company (Pioneer Div.) Los Angeles
1944	The Flintkote Company (Pioneer Div.) Los Angeles

SLAM THE DOOR ON MOLD!

DOWICIDES CONTROL
Mold Decay Termites

Dowicide can be an important part of your plant protection force—standing as an ever vigilant guard at your doors to keep mold and decay out.

There are seventeen related products in the Dowicide family—each designed for a specific assignment . . . each thoroughly tested and proved by years of use in many industries.



Dowicide has proved its worth many times in the paper industry.

Applied as the stock emerges from the lapping machine, Dowicide inhibits mold stain and protects the pulp quality. Added to the stock chest, Dowicide prevents "souring" of pulp. Also finished paper that will come in contact with moisture can be made mold-resistant by incorporating Dowicide.

Write for complete information on how to prevent the destructive inroads of mold.

. . .

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland
Detroit • Chicago • St. Louis • Houston • San Francisco
Los Angeles • Seattle

Among the many other Dow products serving the Paper Industry are: Ethocel, Methocel, Styrene, Dowtherm, and Phenol

DOWICIDE

GERMICIDES AND FUNGICIDES

DOW

ALLIED

NEW STEEL TANKS FOR SHIPPING CHLORINE

The Pittsburgh Plate Glass Company has opened a new field for the transportation of chlorine, which holds great promise for postwar development, with the delivery to Charleston, West Virginia, of 380 tons of the chemical, in a red, white and blue barge.

The liquid chlorine was transported 203 miles by towboat from a plant operated by the Columbia Chemical Division of the Pittsburgh Plate Glass Company at Natrium near New Martinsville, West Virginia. It was discharged into pipe lines of the Carbide and Carbon Chemicals Corporation plant to be used in war work. This one shipment of liquid chlorine is sufficient to purify a year's supply of water for a city of 3,000,000 persons.

From the year 1909, when liquid chlorine was first shipped in the U. S., great strides have been made in the transportation of this chemical. Small cylinders of 10 to 20 pounds capacity and 15-ton single-unit cars were first. Then came the one-ton tanks in 1910. In 1917, 100- and 150-pound cylinders were introduced. The special cradle car holding 15 one-ton tanks made its appearance in 1922. The forge welded 30-ton single-unit car came in 1928. Pittsburgh Plate pioneered 30-ton improved type fusion-welded cars in the spring of 1941, and shortly thereafter was operating a fleet of 55-ton cars. River shipments had been limited to one-ton containers until last June, when this restriction was removed by the U. S. Coast Guard after applications by Pittsburgh Plate Glass Company.

The chlorine is carried in four fusion-welded steel tanks with a minimum thickness of 1¼ inch. They were built to withstand a pressure of 300 pounds per square inch. The steel barge is 135 feet long with a beam of 26 feet. The cylindrical tanks are 55 feet, 4½ inches long, and 7 feet, 8½ inches in diameter, and are mounted in the barge in pairs on steel cradles.

Every safety requirement was surpassed. The arrangement of the dome fittings is slightly different than that on a tank car, and each dome is equipped with added safety devices, in addition to those ordinarily carried by the chlorine tank cars.

The piping on the barge is so designed as to permit loading and unloading from either side. The connection to the tank for either loading or unloading has been made to prevent manifolding of the tanks.

The company's color scheme, red, white and blue, which is in use on its tank car fleet, has been carried out on the barge.

The use of chlorine has jumped by leaps and bounds during the war, and its sale is under strict WPB allocation. The industry is predicting in the postwar period it will become the Queen of the chemicals because of the part it will play in making plastics, synthetic rubbers, dry cleaning fluids, high-test gasoline, vitamins, sulfa drugs, delicate dyes, medicines, and many other things such as waterproofing and fireproofing materials.

Before the war chlorine was used principally to bleach paper and textiles, purify water, and for making other chemicals. Its output has jumped from 514,000 tons in 1939 to 1,211,000 tons last year.

An idea of the changing demand for chlorine can be had by noting that pulp treatment, the biggest prewar user, averages around 200,000 tons annually, while chlorine industry now estimates needs of the chlorinated hydrocarbon family will run as high as 250,000 tons. Trichloroethylene, a degreasing agent, used 100,000 tons last year, as it became one of the most prominent agents of the dry cleaning business.

It is planned that additional barges and improvements in transportation equipment will increase the demand.

◆

Steel and concrete barge loaded with the largest shipment of chlorine on record—380 tons, or enough to purify a year's supply of water for a city of 3,000,000. The barge is shown here just before starting its historic 203 mile trip from the Natrium plant operated by the Chemical Division of the Pittsburgh Plate Glass Company, near New Martinsville, West Va., to Charleston.

▸▸▸ OFFICES HAVE BEEN opened in Los Angeles by H. K. Porter Company, Inc., of Pittsburgh, and subsidiaries. Plans also are in the making for San Francisco offices. District manager for the territory is Harold A. Hintz, who will be located at the Los Angeles office, 849 Petroleum Building, Los Angeles 15, California.

◆

POSTGRADUATE COURSE TO BE SPONSORED BY ALLIS-CHALMERS CO.

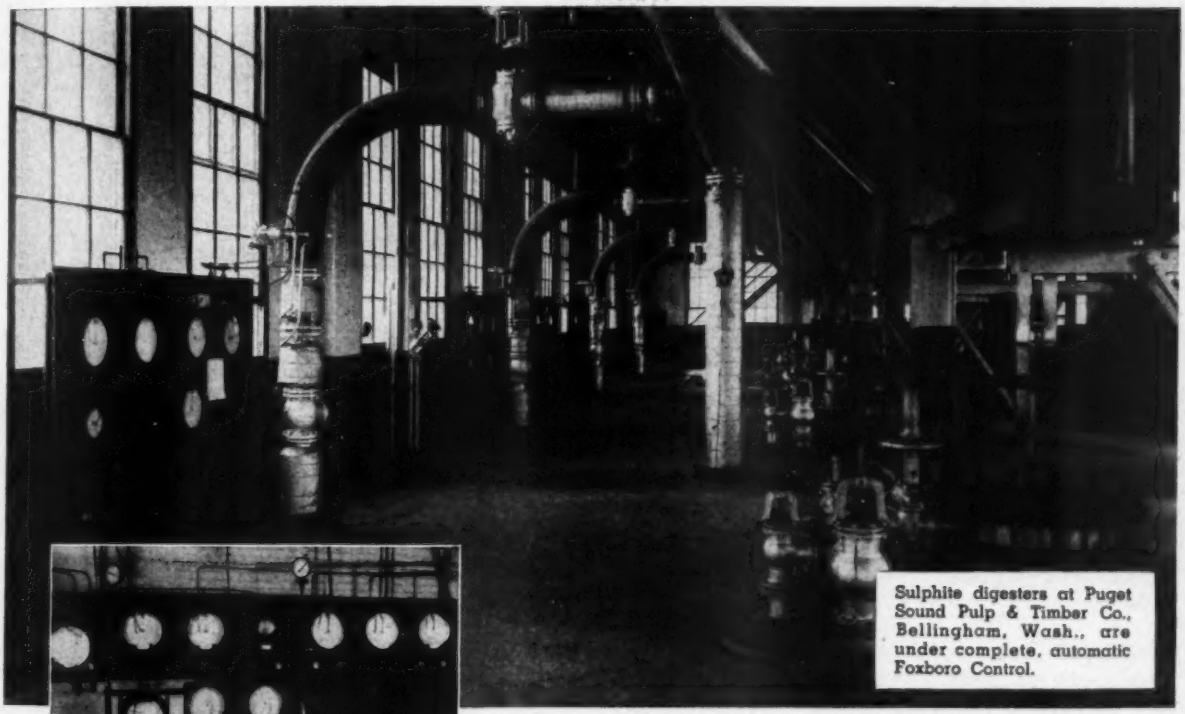
The training department of the Allis-Chalmers Manufacturing Co., in co-operation with the Illinois Institute of Technology, has launched a new post graduate educational course which will lead to a Master of Science degree in electrical or mechanical engineering, according to Lee H. Hill, vice president in charge of industrial relations.

The graduate course of instruction, conducted after working hours for the Allis-Chalmers employes, will be taught at the West Allis plant by professors of the Illinois Institute of Technology.

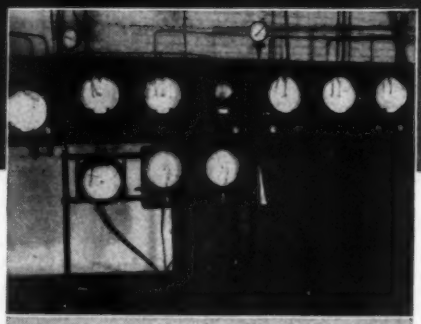
Hill said the Master of Science de-

AN "INSIDE TRACK"

TO BIGGER SULPHITE PULP YIELDS!



Sulphite digesters at Puget Sound Pulp & Timber Co., Bellingham, Wash., are under complete, automatic Foxboro Control.



Foxboro Control Instrumentation for sulphite digesters at Fraser Companies, Ltd., Edmundston, New Brunswick.

Foxboro Cooking Control installation for sulphite digesters at Penobscot Chemical Fiber Co., Great Works, Me.

With today's critical shortage of pulpwood, it's more important than ever before to make every cook yield the largest possible amount of quality pulp.

Sulphite mills equipped with Foxboro-Controlled digesters have the "inside track" to such maximum yields. Designed by men with years of intimate experience in pulp and paper processing, Foxboro Digester Control automatically maintains optimum conditions throughout the entire cook.

By closer, more dependable control of temperature, this Foxboro Instrumentation prevents pulp-losses of 1% or more that often occur simply through overheating. And its continuous automatic control of pressure holds the correct sulphur dioxide excess . . . eliminates wasteful screenings!

Learn how easily you can put your mill on the "inside track" to better output. Write for detailed information on engineered Foxboro Control for your digesters. **The Foxboro Company, 158 Neponset Avenue, Foxboro, Mass., U. S. A.** Also Montreal, Canada. Branches in principal cities.

RECORDING · CONTROLLING · INDICATING

FOXBORO Instruments

gree will be granted to graduate engineers after the completion of 32 hours of the approved curriculum, with a grade of "B" or better, and the writing of a satisfactory thesis. While the course will be open to any company employee with sufficient background to handle the studies, the post graduate degree will depend upon approval of undergraduate work.

Preliminary registration found approximately 60 signing up for the courses, and it is expected more will register prior to the beginning of classes in October.

◆

▶▶▶ TWO NEW SALES OFFICES have been announced by DeZurik Shower Company, Sartell, Minnesota. Thomas Gillespie is located at 5044 Marine Drive, Chicago, to serve the industry in Wisconsin, Illinois, Indiana, Ohio, and Michigan. Frank P. Wilder, 2141 N. W. Davis Street, Portland, Oregon, will serve the mills in Oregon, Washington, and California. The company's eastern sales office at 11 West 42nd Street, New York, has continued to serve the Atlantic Seaboard mills during the War and is under the direction of Otto Goeppinger.

◆

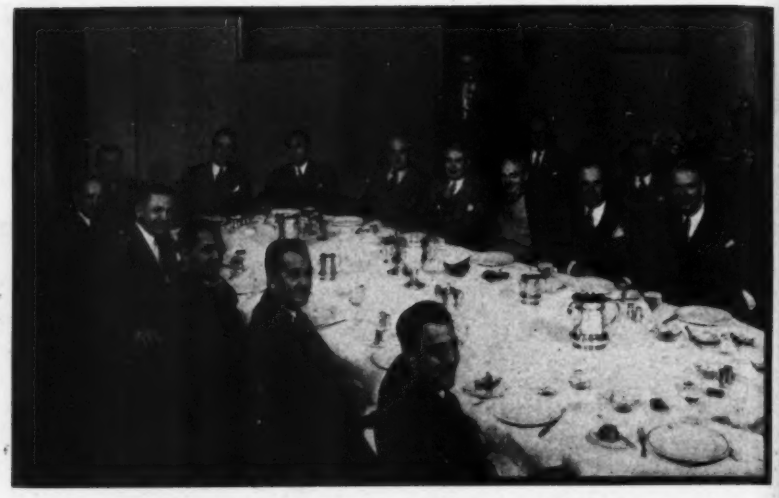
RELIANCE MOVES FOR POSTWAR—ANNOUNCES IMPORTANT CHANGES

Important changes have just been announced by The Reliance Electric & Engineering Company, Cleveland, Ohio, in a move to integrate manufacturing facilities for postwar.

Both the Reliance Marine Plant and Plant No. 2 are to be brought together as a self-contained Marine Division under Karl H. Meyer as manager and W. H. Haber as production manager. The long run manufacture of the smaller Reliance equipment will hereafter be concentrated in this division.

Larger and more specialized equipment will continue to be produced at the main plant, now to be known as the Ivanhoe Division. Manager of this division will be Robert W. Cornell.

The three men given added responsibilities by these changes are seasoned Reliance men. Mr. Meyer has been with the company since his graduation from Case School of Applied Science as a mechanical engineer in 1926. He has been superintendent of the Marine plant as well as works engineer at the main plant. Mr. Haber has been with the company 11 years. Mr. Cornell became associated with the company in 1930, after attending Syracuse University and the Harvard Graduate School, and has been superintendent of the main plant and Plant No. 2 for the past two years.



Bulkley, Dunton Get-Together. After the annual Bulkley, Dunton Pulp Co. Golf Tournament at the Deepdale Country Club on Long Island, Fred Enders, president, entertained the contestants for dinner: Clockwise from right foreground: Milton Bailey, Roger Egan, Stephan Goerl, Walter Lawrence, Harry Pratt, Walter Sheehan, Fred Enders, R. M. Buckley, Eugene Mullaney, Charles E. Mueller, Pierre Loddengaard, E. J. Rose, Erik Thomee. In the background (L to R) Rex Vincent, Robert Greene, and Wm. M. Knox.

ARMY-NAVY "E" AWARDS

Cooper Alloy Foundry Company, Hillside, New Jersey—The coveted "E" pennant for excellence of production, was awarded recently to the employees of this company. The presentation was made by representatives of the War and Navy Departments.

Peerless Pump Division (Food Machinery Corporation), Los Angeles, California—The award of the Army-Navy "E" pennant was made to the employees of this company at a special presentation ceremony on September 1. The pennant was presented by Rear Admiral Joseph R. Defrees, U.S.N. (Ret.), Inspector of Naval Material, Los Angeles district.

Second Star: The "E" pennant was awarded The Fox Paper Company, Lockland, Ohio, a year ago. The company has just been awarded its second white star for continued excellence.

Fourth Star: In making this award for excellence to the Philco Storage Battery Division, of the Philco Corporation, Trenton, New Jersey, Commander J. C. Harris, U.S.N.R., office of inspector of naval material, Philadelphia, declared that production of war material on the home front is just as important as, and sometimes more arduous than duty on the fighting front. In accepting the award, M. W. Heinritz, vice president, announced that Philco battery production in the first eight months of 1944 is 47 per cent ahead of the same period last year.

"M" AWARD

(The Maritime "M" Award of the United States Maritime Commission is given for distinguished service in contributing to the building of America's Victory Fleet. It is a signal honor awarded only for outstanding achievement in vital wartime production.)

▶▶▶ REFERRED TO as the 153rd Maritime "M" to be awarded to a manufacturing concern, was the recognition given this award which was presented to Reliance Electric & Engineering Company, in a ceremony at the Cleveland (Ohio) plant on September 16. The presentation was made by Admiral Howard L. Vickery, vice chairman of the Maritime Commission to Clarence L. Collens, president of Reliance.

▶▶▶ SPECIAL CEREMONIES marked the presentation of the U. S. Maritime Commission Award of Merit to the employees of the Crane Company, Chicago, on September 22. The "M" pennant was presented by Commissioner John M. Carmody, of the U. S. Maritime Commission, and was accepted by John H. Collier, president of Crane Company.

OWI Photo by Palmer in an Allegheny Ludlum plant

Stainless Steel Carriers

FOR WAR'S VITAL LIQUIDS

HAND BOOK OF SPECIAL STEELS

Newly revised and reprinted—a comprehensive book on the properties, uses, and best methods of handling, treatment, etc. of tool, stainless and other alloy steels. Plenty of tables to facilitate quick reference and selection. 136 pages, pocket-sized, latest data.

SEND FOR YOUR COPY

Address Dept. PI-25

WHO'S to say what job is more vital than another, when the chips are down? Those Allegheny Metal tubes aren't gun barrels, but they carry charges quite as potent in the overall picture. Much stainless tubing has gone into the manufacture of high-octane gas, synthetic rubber, magnesium, food and dairy products, etc.—and in more minute sizes, it is indispensable in aircraft fuel and instrument lines, drug and medical work and similar uses.

In each case, the job was a function of stainless steel's ability to withstand corrosion or heat, or impart greater strength and reliability. Where can Allegheny Metal—either in tubing, bars, wire, sheets, strip, castings or forgings—operate to improve *your* products? Our Technical Staff is at your service.

Allegheny Ludlum STEEL CORPORATION

GENERAL OFFICES: BRACKENRIDGE, PENNA.

W&D A-9333

Allegheny Metal also handled by all Joseph T. Ryerson & Son, Inc. warehouses

GLYCO PRODUCTS CO. HAS NEW FACTORY IN MEXICO CITY

A late announcement by the Glyco Products Company, Inc., Brooklyn, New York, states that it is opening a factory and offices in Mexico City. The Mexican Company will be known as Productos Quimcos Glyco, S. A., and is located at Cipres Num. 355, Mexico D. F., Mexico. In charge of the company are Dr. E. Rios and Dr. A. Graf, both eminent Mexican chemical engineers of considerable experience.

This company is manufacturing many of the products of the American parent company, particularly those which can be made from Mexican raw materials. The company also acts as exclusive sales agent for all the other products manufactured by the Glyco Products Company, Inc., which are not, at present, being produced in Mexico.

◆

NEVILLE CO. AGENTS MEET AND DISCUSS POSTWAR MARKETING

Postwar marketing plans for The Neville Company were formulated at a recent meeting of sales agents at the Neville plant, Neville Island, Pittsburgh, Pennsylvania. Representatives of eleven out of the fifteen Neville agencies covering all of United States and Canada attended.

Subjects discussed included: "New Uses for Neville Products," by L. V. Dauler, Sales Manager; "New Products of the Past Year, New Products now in Pilot Plant Development, and Possible New Developments," by L. M. Geiger, Director of Research; "Expanded Technical Services for Customers," by D. L. Marsh, Technical Service Laboratories; "Future Technical Possibilities," by Dr. J. H. Lux, assistant director of research.

A general discussion of these subjects and the formulating of future sales practices and methods followed. H. N. Dauler, president, presided at the sessions and led the discussion.

The agents were also given a technical review of the origin of raw materials of Neville products and the company's production processes by J. G. Hatman, chief engineer and executive consultant. An inspection of the plant followed. The meeting, which lasted one day, concluded with a banquet attended by the agents and executives of the company.

◆

▶▶▶ A NEW BRANCH OFFICE at 79 Milk Street, Boston 9, Massachusetts, is announced by the J. O. Ross Engineering Corporation, New York City. The Boston office will be in charge of Frank W. Partsch, vice president.

NEW PLASTIC FOAM

Plastic foam weighing only one-seventh as much as cork has been developed and is being manufactured for important war uses by the United States Rubber Company.

Although this new material has great buoyancy, it is semi-rigid. Because it contains so much air space, it has good insulation and sound-deadening properties in comparison to its weight. It weighs less than a pound and a half a cubic foot, and can be made to weight as little as three-quarters of a pound per cubic foot. The new products is called *flotofoam* because of its buoyancy.

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▶▶▶ THE CHICAGO OFFICE of Bird Machine Company, 80 East Jackson Blvd., has been moved to 603 Main Street, Evanston, Illinois.

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▶▶▶ THE INDUSTRIAL CHEMICAL DIVISION of Hercules Powder Company, Wilmington, Delaware, will discontinue the resale of a number of industrial chemicals made by other manufacturers, according to an announcement made October 2 by Ralph B. McKinney, general manager of that department. The change is made to concentrate the department's technical service and sales force upon products manufactured by Hercules. This step will in no way affect the

Attending the recent meeting of sales agents and company officials of the Neville Company, at the Neville plant, Neville Island, Pittsburgh, were representatives of 11 out of the 15 Neville agencies covering the United States and Canada. In the front row (L to R) are Neville officials: J. M. Spatz, traffic manager; H. N. Dauler, president; L. V. Dauler, sales manager; J. W. Westhead, salesman; E. G. Isenberg, chief sales clerk; J. G. Hatman, executive consultant; H. J. Shearer, superintendent; R. M. Lauderbaugh, brokerage department; L. M. Geiger, director of research. Sales agents standing (L to R) are: P. E. Calo (John H. Calo Co.), New York and Chicago; D. D. Bradley (Commercial Chemicals, Inc.), Buffalo; T. W. Ashley (T. C. Ashley & Co.), Boston; E. P. Lambert (Chas. T. Wilson Co.), New York and Akron; V. L. Roberson (C. l. lorns Co.), St. Louis; E. F. Wilson (E. H. Haines Dist. Co.), Chicago; George Senn, Philadelphia; O. E. Goetz (Krekel-Goetz Sales & Supply), Grand Rapids, Mich.; C. L. Small, Smead & Small, Inc., Cleveland. Also Dr. J. H. Lux, assistant director of research, Neville; C. L. Hueston, Detroit, Michigan; R. L. Ulrich, assistant superintendent, Neville; J. H. Calo (John H. Calo Co.); D. L. Marsh, Neville Tech. Service Laboratory; W. F. Eberle, manager, Neville Dauler Benzol Division.

manufacture and sale of rosin size, alum, casein, and other paper chemicals which will be carried on at the same points as heretofore.

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▶▶▶ THE NEW PLANT of The Mathieson Alkali Works (Inc.) located at Lake Charles, Louisiana, is now in production, according to an announcement from that company. One of the two largest in the country producing ammonia from natural gas, this plant was built by the Defense Plant Corporation and operates under lease by Mathieson. At present, the plant is fully engaged in war production, but after the War, the operation is expected to manufacture chemical fertilizers for Southern farmers and anhydrous ammonia for refrigeration.

◆

▶▶▶ FIFTEEN LINCOLN EMPLOYEES of The Lincoln Electric Company, Cleveland, Ohio, have been given awards totaling $4,750 in a Postwar Planning Competition. The contest ran from October, 1943, to July 1, 1944, and the awards were made September 1. One hundred sixty papers were submitted.

◆

▶▶▶ THE NEW ADDRESS of the George S. May Business Foundation is 840 North Michigan Avenue, Chicago. On October 1, the Foundation moved from its former location, 111 South Dearborn Street into the new spacious quarters.

◆

NEW DISTRIBUTOR FOR KIDDE FILM

Because of the demand for its motion picture "Flame Facts," Walter Kidde & Company, New York City, have retained Princeton Film Center as distributing agents. This 20-minute, 16 mm. Kodachrome sound film shows how and why fire burns, the appropriate extinguisher for each type of blaze, and its correct use. It illustrates some of the common errors in industrial first-aid fire-fighting which can be responsible for failure, and gives valuable tips on fire prevention.

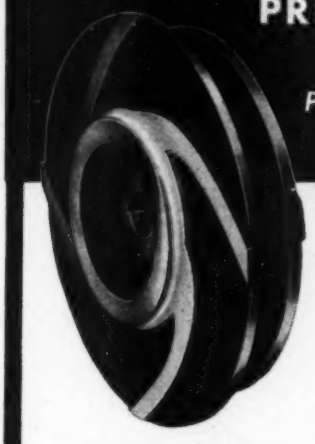
The number of requests for this film, together with wartime limitations on prints, have necessitated restricting bookings to those arranged by industrial plants, public utilities and other groups directly concerned with first-aid fire-fighting.

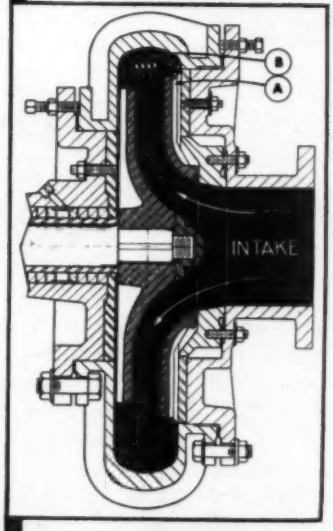
Eligible groups who wish to obtain "Flame Facts" may apply to Princeton Film Center, Princeton, New Jersey, for bookings at a charge of 50c each to cover handling costs.

MORRIS

PRESSURE BALANCED IMPELLERS

Prolong Pump Life . . .
Increase Efficiency . . .





The hydraulic design of the Morris impeller reduces to a minimum destructive circulation of abrasive solids from the shell pressure passages to the suction inlet. Thus, the need for external water supply to prolong the life of the impeller and liners in this pump is entirely eliminated.

On the suction side of the impeller shroud MORRIS places additional vanes of larger diameter (A in the diagram). These produce a higher localized pressure than exists in the pump shell (indicated at B), reducing internal circulation and leakage. The resulting smoother positive flow directs abrasive and corrosive content away from the vital working parts and gives the impeller maximum wear protection.

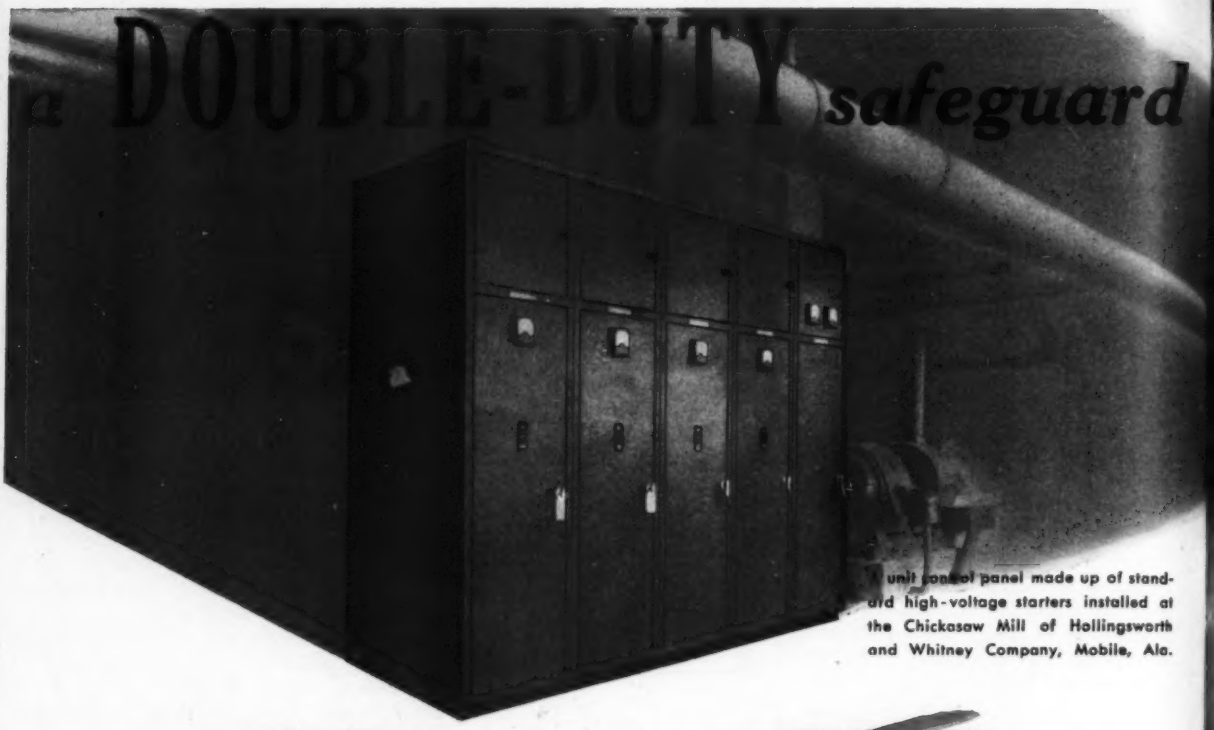
This patented pressure balanced impeller is just one of the many points of hydraulic design in which MORRIS excels. Recommendations on slurry pumping problems based on over 75 years of pump building experience furnished upon request.

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Branch Offices in Principal Cities

Type S Slurry Pump

MORRIS CENTRIFUGAL PUMPS

a DOUBLE-DUTY safeguard



unit control panel made up of standard high-voltage starters installed at the Chickasaw Mill of Hollingsworth and Whitney Company, Mobile, Ala.

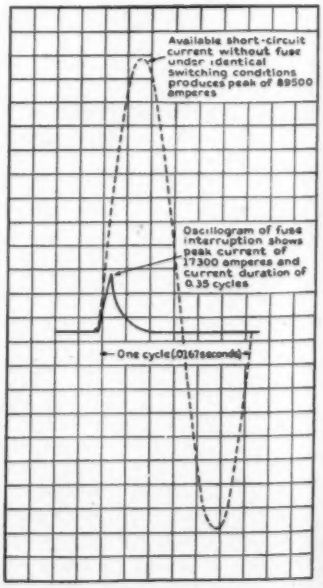
FULLY PROTECTIVE MOTOR STARTING

- Motor is protected from sustained overloads, locked-rotor condition, single phasing, and overheating by means of accurately calibrated isothermic relays. Yet it will not shut down prematurely.
- Undervoltage protection is also provided. In case of low voltage or power failure, the line contactor will open, taking the motor off the line, and will not reclose until the push button is pressed. Time delay is included if desired.
- Sure starts (at full voltage or reduced voltage as motors require) are made by sturdy, clapper-type, air-break contactors having self-cleaning tips. Our service records show long life and low maintenance even where starts and stops run to millions.
- For protection of personnel, high-voltage buses are segregated in a separate upper compartment. Trunnion-hinge fuse mounts serve as disconnects, isolating the starter from the line.

FAST-ACTING SHORT-CIRCUIT PROTECTION

Type EJ-2 current-limiting fuses give split-cycle short-circuit protection, They cut off the heavy current flow before the short has had time to damage contactor or motor.

Interrupting capacity of the EJ-2 fuses is fully adequate. Sealed and stable, they emit no gas or vapor which might lead to a flash-over.


Available short-circuit current without fuse under identical switching conditions produces peak of 89500 amperes
Oscillogram of fuse interruption shows peak current of 17300 amperes and current duration of 0.35 cycles
One cycle (.0167 seconds)

How EJ-2 fuses limit the flow of short-circuit currents

GENERAL ELECTRIC

684-12-147

for paper-mill motive power

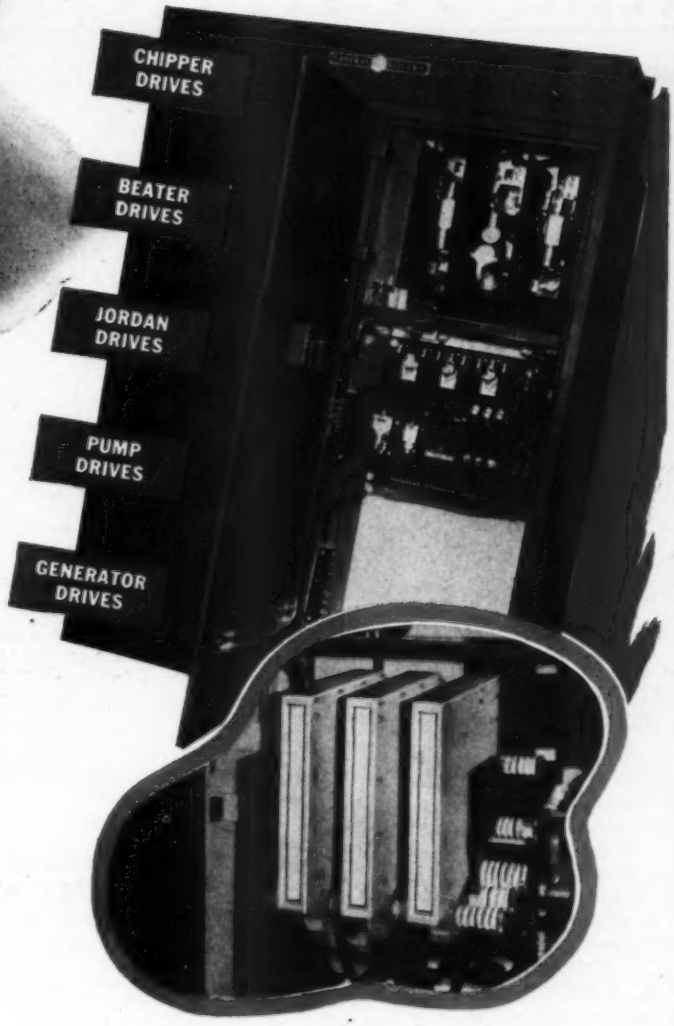
Want a double measure of protection for high-voltage motors? These modern, factory-built G-E cubicles reduce the risks of interrupted production in two ways:

1. **To safeguard motor operation,** a long-lived, air-break contactor provides sure starts and stops. Overload and undervoltage protection is matched to the motor characteristics.

2. **To protect the control** as well as the motor, "designed in" EJ-2 fuses combine high interrupting capacity with split-cycle response to short-circuit currents. No matter how bad the "short," these fuses hold fault-current peaks to levels which cannot damage the contactors or other control parts.

Equally important is the *well-proved practicability* of this metal-enclosed combination of long-lived contactors and EJ-2 fuses from the standpoints of accessibility, cleanliness, appearance, and protection of personnel. Installed individually or in a group, this high-voltage control typifies the kind of electrical modernization that *saves* as it serves.

G-E engineers with a keen understanding of paper-mill problems will help apply these starters as a part of a co-ordinated power distribution system, along with substations, switchgear, and other a-c and d-c apparatus right from the turbine through to the drive motor. Why not discuss your modernization plans with them now? *General Electric Co., Schenectady 5, N. Y.*



These complete-protection starters can be used with motors ranging from 50 hp to an upper limit ranging from 300 hp (for motors with high locked-rotor currents) to 700 hp (for motors with low locked-rotor currents). Available for starting and protection of squirrel-cage induction motors, two-speed squirrel-cage induction motors, wound-rotor motors, and synchronous motors—for full-voltage, reduced-voltage, reversing, and dynamic-braking service. (Lower view shows air-break contactors mounted behind panel in lower section.)

HIGH-VOLTAGE CONTROL FOR PAPER MILLS

BUY ALL THE BONDS YOU CAN AND KEEP ALL YOU BUY

ASSOCIATIONS

AMERICAN STANDARDS ASS'N GIVEN AWARD BY ARMY ORDNANCE DEPT.

The Army Ordnance Department presented its Distinguished Service Award to the American Standards Association at a luncheon given in the Waldorf Astoria Hotel, New York City, September 14.

This award is given "In recognition of outstanding and meritorious engineering advisory services in war and peace, for the development, manufacture, and maintenance of ordnance material." General Stewart E. Reimel, recently returned from active service in the Pacific War Theater, made the presentation before representatives of the 80 national trade, technical, and governmental groups that make up the membership of the ASA, and some of the men who have taken a leading part in the technical work.

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CHICAGO PRO PAPER GROUP HOLDS FIRST MEETING OF SEASON

The first meeting of the Chicago Professional Paper Group for the 1944-45 season was held on September 18, at the Chicago Bar Association. This meeting was called primarily for the adoption of a constitution and by-laws, and for the presentation of a slate of officers.

In addition, the splendid sound film of P. H. Glatfelter Company, Spring Grove, Pennsylvania, entitled "A Short Course in Papermaking," was shown.

Attendance at the meeting totaled more than 100.

◆

TEN PAST CHAIRMEN HONORED BY MICHIGAN DIV. SUPTS. ASS'N

The annual meeting of the Michigan Division of the American Pulp and Paper Mill Superintendents Association was held at the Park-American Hotel in Kalamazoo September 21.

Ten past chairmen of the Division were guests of honor at the meeting and were presented with certificates of service by Raymond L. Barton, Michigan Paper Company, Plainwell, Michigan. Mr. Barton is national president of the Superintendents Association, and during the meeting he gave the Division a report of the activities of the national body.

New officers elected to serve the Division for the coming year are:

Chairman—Joe Waber, Rex Paper Company, Kalamazoo.

First Vice Chairman—Ralph Atkins, Lee Paper Company, Vicksburg.

Second Vice Chairman—Walter Wolfe, Mac-Sim-Bar Paper Company, Otsego.

Secretary-treasurer—Herbert Johnston, Allied Paper Co., Kalamazoo.

In the absence of Glenn Sutton, retiring chairman, Ralph Atkins presided at the meeting. Past chairmen honored were: E. T. A. Coughlin, the first chairman elected when the division was formed in 1919; Walter Crawford, Chicago; Arnold Weller, Lester La Liberte, Arthur Cole, A. B. Perlick, William H. Sievert, Otto Fischer, Raymond L. Barton, and Henry Nendorf.

◆

▶▶▶ PACKAGING EXECUTIVES of companies in all parts of the United States will meet in New York November 1 and 2 for the annual meeting of the Packaging Institute. This conference will take place at the Hotel New Yorker. The sessions will be technical in nature and will deal largely with questions of materials, machinery, and production.

◆

NE DIVISION SUPTS. MEET JOINTLY WITH MAINE-N. H. TAPPI

A joint meeting of the Maine-New Hampshire Group of TAPPI and the Northeastern Division of the Pulp and Paper Mill Superintendents Association was held at the Poland Spring House, Poland Spring, Maine, September 15-16.

A round table discussion on the subject "Postwar Problems as Related to the Technology of the Industry," was held by TAPPI. This discussion was held in two sessions on the first day of the meeting. The following points were covered: (a) pulp mill practices; (b) paper mill practices; (c) pulp mill by-products; and (d) stream pollution.

◆

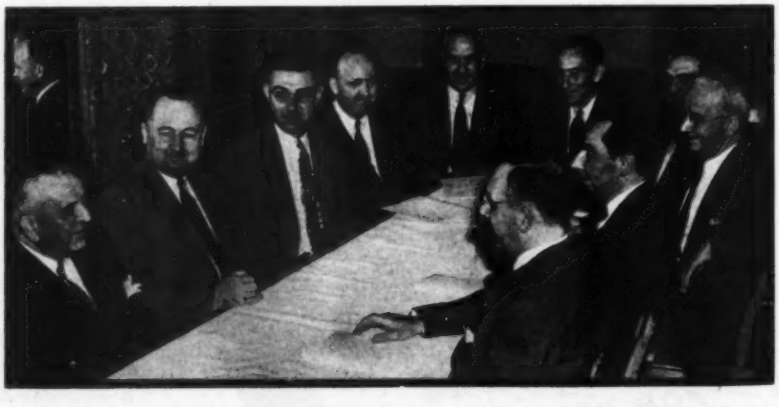
▶▶▶ NEW OFFICERS were elected at the September 9 meeting of the Miami Valley Division of the American Pulp and Paper Mill Superintendents Association, Inc., as follows: Chairman—James J. Andrews, Fox Paper Company, Lockland, Ohio; First Vice Chairman—Harold F. Bennett, The Gardner-Richardson Company, Lockland, Ohio; and Second Vice Chairman—Herbert A. Brawn, Miamisburg Paper Company Division, American Envelope Company, Miamisburg, Ohio.

◆

N. Y.-CAN. DIVISION SUPTS. MEETS WITH EMPIRE STATE TAPPI

At the joint fall meeting of the New York-Canadian Division of the Superintendents Association and the Empire State Section of TAPPI, Vance P. Edwardes, national president of TAPPI, was the guest speaker at the banquet held on the evening of September 1. The meeting was held at the Welland House, St. Catherines, Ontario, Canada, September 1-2.

A number of well-known speakers participated in the program of the sev-



Past chairmen of the Michigan division of the American Pulp and Paper Mill Superintendents Association were honored with presentation of service certificates at the annual division meeting at the Park-American hotel. Left to right they are E. T. A. Coughlin, Bryant Paper Co.; Walter Crawford, Great Lakes Pulp and Paper Co., Chicago, formerly with the Sutherland Paper Co.; Arnold Weller, Sutherland Paper Co.; Lester La Liberte, Kalamazoo Vegetable Parchment Co.; Arthur Cole, Rex Paper Co.; A. B. Perlick, Kalamazoo Vegetable Parchment Co.; William H. Sievert, Carthage, N. Y., formerly with the Michigan Carton Co., Battle Creek; Otto Fischer, Bryant Paper Co.; Raymond L. Barton, Michigan Paper Co., Plainwell, and Henry Bendorf, Rex Paper Co.

Official U. S. Army Signal Corps Photo

"Old Faithful," the famous wooden landing box that has accompanied the Marines on so many expeditions, now shares honors with the new fibre cartons, waterproofed and reinforced.

The paper boxes, though light in weight, can stand rough handling. Sealed with a new waterproof tape, they can be soaked for days in the bottom of a ship, or lie in hot salt water or arctic snows without injury to the contents.

Supplying the needs of fighting men—on Pacific atolls, in tropical jungles, on icy Arctic isles—is a terrific transport problem. But it is just one of the intricate war problems which the essential paper industry, with resourcefulness and enterprise, is helping to solve.

KENWOOD WOOL PRODUCTS

F. C. HUYCK & SONS

Kenwood Mills

Albany New York

F. C. Huyck & Sons is proud to be serving an industry so essential to the war program. Our skill, our facilities and our 74 years of experience are always available in solving the special felt problems created by urgent wartime paper needs.

eral sessions. An interesting highlight of the mill visits was a trip to the Ontario Paper Company plant where the visitors saw the new alcohol plant.

The following officers were elected:

Chairman — H. D. Cook, Sweet Brothers Paper Mfg. Co., Phoenix, N. Y.

First Vice Chairman—C. Ives Gehring, Oswego Falls Corp., Fulton, N. Y.

Second Vice Chairman—Jean Paul Rolland, Rolland Paper Co., Ltd., St. Jerome, Quebec.

Third Vice Chairman — John D. Kane, Flower City Tissue Mills Co., Rochester, N. Y.

Secretary-treasurer—W. B. Colitre, Dilts Machine Works, Fulton, N. Y.

MAGNESIUM ASSOCIATION

The initial luncheon of a new association was held at the Waldorf-Astoria Hotel, New York City, October 3. The Magnesium Association has been formed to advance the interests of the magnesium industry. Magnesium has become a vital wartime material, and it is already being considered one of the great metals that will find a multitude of uses when the world returns to peacetime activities.

Prominent speaker at the luncheon meeting was Dr. Willard H. Dow, president of The Dow Chemical Company, which company began in 1916 to develop magnesium as a metal in this country.

PULP MILL WASTE DISPOSAL RESEARCH

The following program of the Sulphite Pulp Manufacturers' Committee on Waste Disposal is covered by John P. Weidner, chairman, in the following report:

The executives of mills making up the membership of the Sulphite Pulp Manufacturers' Committee on Waste Disposal, who attended a recent meeting, voted to continue their research program through a second five-year period, extending into the year, 1949. The first program, initiated by Wisconsin and Michigan mills in 1939, has shown sufficiently encouraging progress on the attainment of objectives to justify the extension of the work. In attacking this problem the research work has been along two broad lines, namely, utilization and disposal, with the ultimate objective of determining the practicability, effectiveness, and economic advantages of each method of waste disposal.

The success of the program of the group has stimulated interest in this type of research, which deals primarily with industrial conservation problems, as shown by the organization of a group of Pacific Coast sulphite mills, and also a national group of pulp and paper manufacturers within the past few months.

The technical work of the group is directed by a technical committee representing all member mills. The co-ordinator of the work, Captain J. M. Holderby, is now on leave as a Sanitary Engineer with the Army. The present staff working on biological utilization and research consists of 2 graduate fermentation biochemists, 2 analytical chemists, and 1 pilot plant operator with training in mechanical and chemical engineering. The utilization phase is conducted by the staff of the Institute of Paper Chemistry. The acting co-ordinator is A. J. Wiley who has his headquarters at the Institute of Paper Chemistry, Appleton, Wisconsin.

Close co-operation has been maintained with the Wisconsin State Board of Health and the office of the State Sanitary Engineer. L. F. Warrick, the State Sanitary Engineer, has given invaluable aid in guiding the work based on his wide experience in pollution problems.

During the first five years of research, sulphite waste liquor, long known as a critical industrial waste problem, has been shown to have potentialities for present and future utilization through the recovery of valuable by-products. This program to date has led to a close survey and development of the more promising of these various processes, and studies now in progress may lead to the introduction of new products to commercial status. The developments to date for chemical derivatives from this material indicate a good possibility of industrial use of these materials in large quantities. These industrial materials are products of the lignin residue as well as the sugars present in the liquor.

Information as to the type of new chemical compounds as well as improved methods of producing well known chemicals have been published in technical literature, and many of the results have been of a definite aid in the war effort as substitutes for critical chemical materials. Some of the products and methods have been patented, while on others patents are pending, and no further information can be disclosed at this time.

Disposal of the waste liquor by various methods which will lead to the avoiding of nuisance conditions in streams and in lakes has been the larger objective of the program. One of the these disposal processes has been developed to the point where a large pilot plant was constructed for detailed study. This plant, which has been in operation for over a year, has provided considerable information on efficiency and costs, and has pointed out the mechanical and biological difficulties of operating through all seasons of the year the well known trickling filter treatment, adapted from sanitary engineering practice. The successful operation of this method of disposal is dependent entirely upon biological destruction of the materials which are responsible for depletion of the oxygen of the stream in which the waste liquor may be dumped.

The same biological life that destroys the waste materials in the trickling filter is present in rivers, streams, and lakes. The nuisance materials are destroyed by the growth of this biological life, and at the same time large amounts of biological material is obtained. Investigation of stream conditions containing sulphite waste has shown that under properly controlled conditions, the sugars and other organic compounds present in the waste liquor may serve as a very large and important source of valuable food for fish and other desirable forms of aquatic life. The wood sugars in waste liquor are first used as a food material by bacteria, yeast, and other micro-organisms. Growth of such micro-organisms may be so heavy that they make the water appear cloudy. This microscopic material and by-products of its developments next are utilized by microscopic plants (algae) and animals (zooplankton) and by larger animal forms. These in turn serve as a source of food for the game and commercial fish which are found to abound in well regulated waters. Hence, while improper disposal of the waste in the streams may lead to undesirable conditions, proper addition of these materials has been shown to provide an important source of food material for fish.

Large scale disposal of wastes such as sulphite waste liquor in smaller streams may lead to an unbalanced condition in which the growth of these organisms takes place so rapidly, because of the large amount of food present, and their requirement for oxygen for growth may be so large as to exceed the supply of oxygen available in the water. This will lead to septic conditions accompanied by suffocation of the fish due to lack of oxygen.

During the past year this group has been conducting a co-operative project with a member mill located in such a spot, and with the State Sanitary Engineer has studied the principles involved in mechanically supplying large amounts of air and

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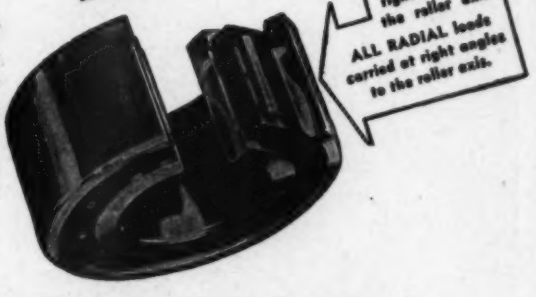
RIGHT-ANGLE LOADING



Of course, you'll have to sweat out extra production after the war in order to . . .

1. **Hold your competitive position**
2. **Break into new markets**
3. **Cash in on the flood of postwar orders before the peak demand dries up**

So, right now, make sure that the new designs on your drafting boards are developing around these high-performance, heavy-duty bearings. Bearings that insure longer life at higher speeds, and under heavier loads.

For longer bearing life, more efficient performance and more economical maintenance . . .

FOLLOW THIS BASIC BEARING PRINCIPLE

- All radial loads carried at right angles to the roller axis.
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RIGHT ANGLE LOADING IS THE REASON

One look at the diagram tells you why Rollway's right-angle loading insures more performance per unit of cost. There are no compound loads to muddy up the stress analysis or to aggravate wear and cause premature failure. Loads are resolved into their simplest components of *pure radial* and *pure thrust*. And each of these separate components is carried by a separate roller assembly AT RIGHT ANGLES TO THE ROLLER AXIS. That means oblique resultants and compound forces are out.

There's no squeezing action to force the rollers from between the races, hence less end-rub and less roller-end wear back. Each separate assembly safely carries heavier loads at higher speeds, or gives proportionately longer life at the same load and speed.

DON'T DELAY Send a sketch, drawing or detailed specification for free bearing analysis by Rollway engineers. The right type of bearing will make a vast difference in the ultimate performance and market for your product.

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oxygen to such waters, in an attempt to restore balanced oxygen conditions which are the requisites of a healthy stream. The principle of aeration involved was pioneered by Professor Tyler of the University of Washington, but never applied to the treatment of an entire river. The river under investigation is one of Wisconsin's favorite fishing streams, and the successful outcome of this research may be expected to enhance the river's reputation among sport lovers.

This biological phase has also been extended to the study of a process for large scale growth of edible yeast, and a pilot plant is under construction at the present time. If the waste materials can be commercially transformed into yeast, a large amount of protein will be provided, which is not now available in this area. This development of a source of protein for cattle food would be a boon to the Wisconsin dairy industry.

A similar biological method has been investigated in relation to the production of industrial alcohol. Economically this does not appear a promising method of utilization for the small mills in Wisconsin.

Another phase of the biological use of the materials has been an investigation concerning the production of methane gas for fuel.

Another similar phase of the program has been the study of a method of contact aeration similar to experiments performed in the use of the trickling filter.

There is still another field of investigation concerned with increasing the tillability and enrichment of the soil. Plots of land have been treated in this manner, and the results to date have been encouraging.

Another method of disposal of the waste liquor, especially during the summer season when stream pollution is the most serious, has been the large scale road tests made to measure the efficiency of the waste liquor for dust laying in the summer. Large scale experiments are being conducted at Marinette and Park Falls.

In all, several score of projects have been undertaken. The ones mentioned above are those showing the most promise at the present time.

Acknowledgment—The Committee acknowledges in the preparation of this report, the assistance of N. L. Malcove, Northern Paper Mills, Green Bay, Wisconsin, and A. J. Wiley, acting co-ordinator, The Institute of Paper Chemistry, Appleton, Wisconsin.

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CONVENTIONS AND COMING EVENTS

October 27-28—Annual meeting of the Southeastern Division of the American Pulp and Paper Mill Superintendents Association at the Poinsett Hotel, Greenville, South Carolina. (This meeting was formerly announced for Asheville.)

November 1-2—Annual meeting of the Packaging Institute at Hotel New Yorker, New York City.

November 2-3—Annual meeting of the Southern Division of the American Pulp and Paper Mill Superintendents Association at the Virginia Hotel, Monroe, Louisiana.

November 15-19—National Chemical Exposition at the Coliseum, Chicago.

November 27-December 2—The 16th National Power Show and Mechanical Exposition, Madison Square Garden, New York City.

STATED MEETINGS

Technical Associations of the Pulp and Paper Industry

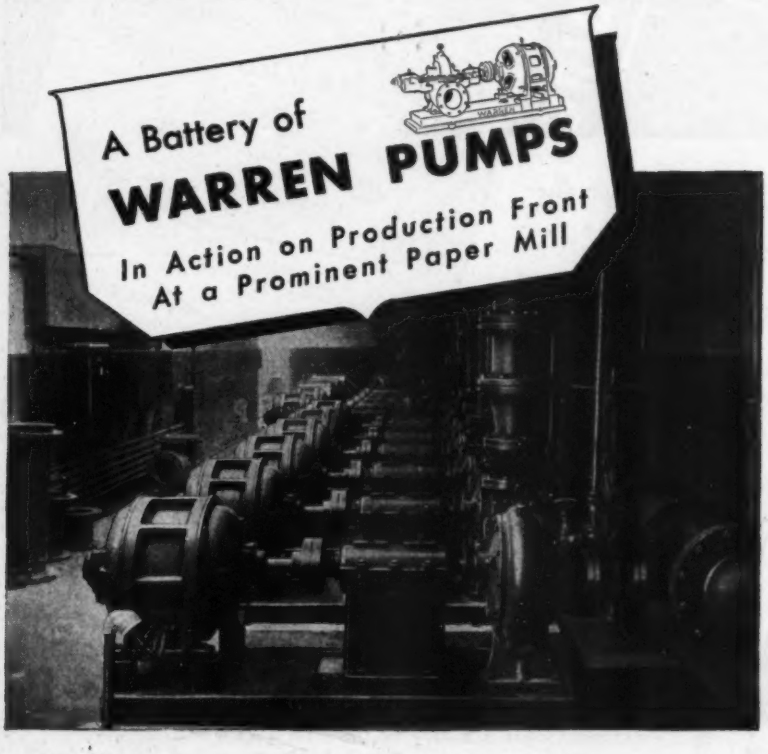
Delaware Valley Section—First Friday of each month at the Engineers' Club, Philadelphia, Pa.

Kalamazoo Valley Section—First Thursday of each month, including June, at 6:30 P. M. at the Columbia Hotel, Kalamazoo, Mich.

Lake States Section—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Chicago Professional Paper Group

Third Monday of each month at Chicago Bar Association, Chicago.



And, like the men, women and equipment in all branches of the armed forces, these pumps are giving a good account of themselves. They stick with their jobs, through thick and thin, at remarkably low operating and maintenance costs. This goes for Warren Stock Pumps, Machine Chest Pumps, Liquor Pumps and Fresh Water Pumps. In other words, for low pumping costs on all Paper Mill services, specify:

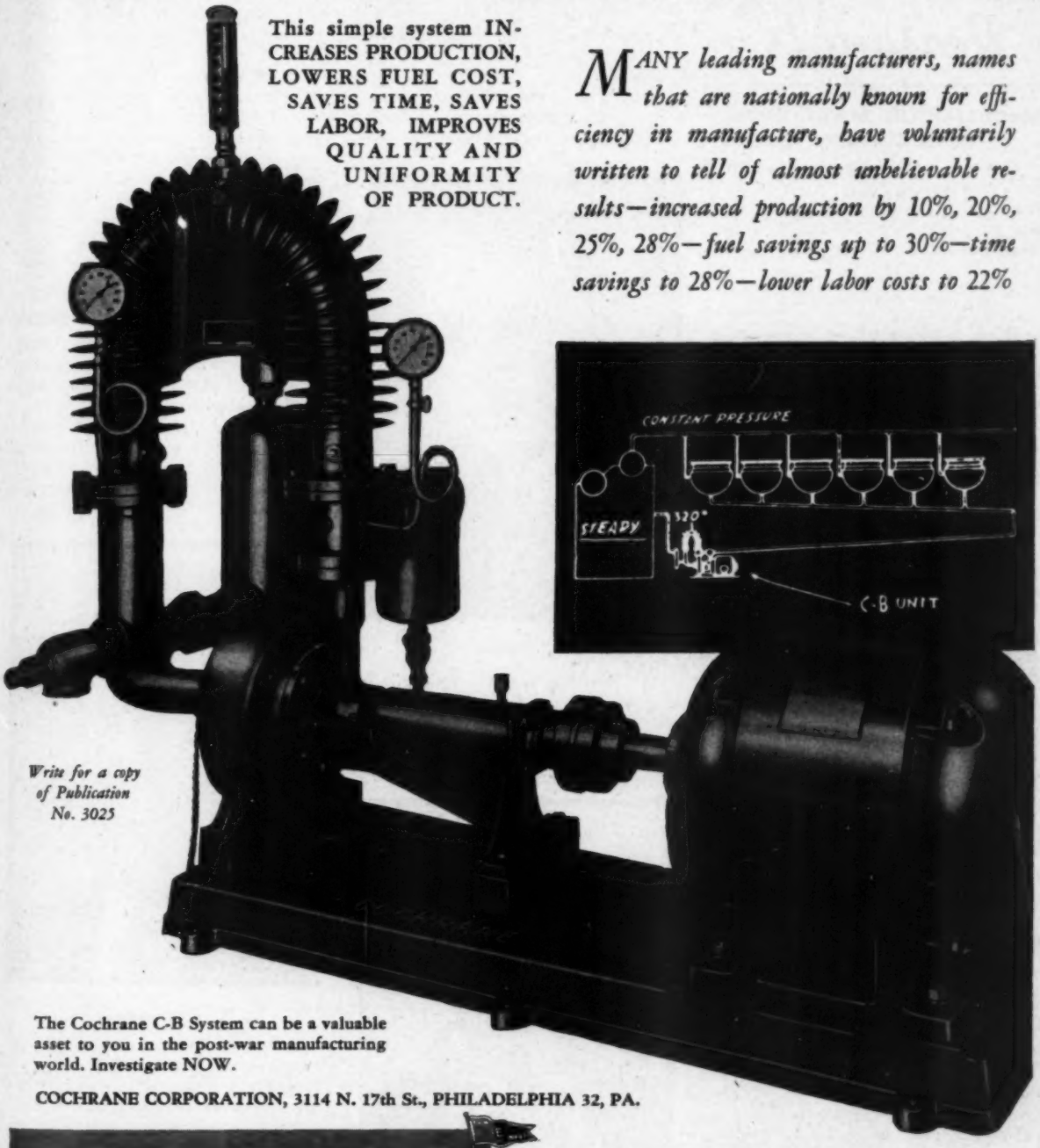
WARREN PUMPS

WARREN STEAM PUMP COMPANY, INC.
WARREN, MASSACHUSETTS

This is the Heart of the COCHRANE C-B SYSTEM of High Pressure, High Temperature Condensate Return

This simple system INCREASES PRODUCTION, LOWERS FUEL COST, SAVES TIME, SAVES LABOR, IMPROVES QUALITY AND UNIFORMITY OF PRODUCT.

MANY leading manufacturers, names that are nationally known for efficiency in manufacture, have voluntarily written to tell of almost unbelievable results—increased production by 10%, 20%, 25%, 28%—fuel savings up to 30%—time savings to 28%—lower labor costs to 22%



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NAMES *in the* NEWS

Personals

McCULLOUGH MADE PRES. OF MASONITE CORP.

Matthew P. McCullough, for many years treasurer and a director of the Masonite Corporation, has been appointed president by the board of directors to succeed the late Ben Alexander.

At the same time, Charles J. Winton Jr., also a director, was named to succeed Mr. McCullough as treasurer, and John M. Coates, legal counsel of the corporation, was appointed a director.

The new president is widely known in the lumber and allied industries, with which he has been associated throughout his business career. He has been treasurer of the Masonite Corporation since 1928, and is also chairman of the board of the Employers Mutual

Matthew P. McCullough

Liability Insurance Company, Wausau, Wisconsin, president of the Alexander & Yawkey Lumber Company, Prineville, Oregon, and a director of the Marathon Corporation, Rothschild, Wisconsin.

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TWO APPOINTMENTS AT ECONOMY PUMPS

The appointment of two commercial vice presidents has been announced by Economy Pumps, Inc., Hamilton, Ohio. The executives so appointed are: E. E. Quimby and Frank H. Gaylord.

Mr. Quimby is widely known as senior partner of Quimby-Ryan, New York City, which firm has represented Economy pumps since 1928. Mr. Quimby will continue his active connection with Quimby-Ryan in addition to his new office with Economy.

E. E. Quimby

Mr. Gaylord recently resigned as vice president and director of the Hoffman Specialty Company, Indianapolis, Indiana, after nearly 25 years with that firm. For many years he made his

Frank H. Gaylord

headquarters in Chicago. In his new position with Economy, Mr. Gaylord's headquarters will continue to be in Chicago.

▸▸▸ Sales manager of its Buffalo division, is the new appointment of *R. C. Wilson,* recently announced by Farrel-Birmingham Company, Inc., Ansonia, Connecticut, and Buffalo. Mr. Wilson has been with the F-B company since 1934. He served as sales engineer until 1942 when he was made assistant to the sales manager. His new post puts him in charge of sales of gears, gear units, flexible couplings and related products.

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PORTER NAMES GROTTS TO NEW RESEARCH POST

H. K. Porter Company, Inc., Pittsburgh, announces the appointment of *Fred Grotts,* president of its subsidiary, Fort Pitt Steel Casting Company, to a newly created position (in addition to his present one) as director of research and metallurgy for all Porter plants.

In this new capacity, Mr. Grotts will have charge of problems relating to

Fred Grotts

materials of all types, metallurgy, and practices on present products. He will establish a technical and engineering advisory service for customers on materials and specifications, and direct new product developments.

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▸▸▸ The election of *J. P. Strasser* as a vice president of Stein, Hall & Company, Inc., New York City, has been announced. As manager of the Paper Departments of Stein, Hall & Company and Stein, Hall Manufacturing Company, of Chicago, Mr. Strasser is well known to paper mill men throughout the country.

"HERE, ROSIE, THE RIVETER
is one of the reasons
you can do your job so well"
Scotch tape holds a row of rivets in place for you, doesn't it, Rosie . . . multiplies your production on your vital job? Well, yours is just one of the thousands of war or civilian uses for such tape.
Obviously, tape production mustn't be interrupted. Moreover, quality must remain uniform.
And that's where Bowser Exact Liquid Control comes in. Years ago, one of America's largest producers of industrial tape installed Bowser Meters to measure precisely the various ingredients that give tape adhesive the proper consistency. Then other Bowser Meters measure the flow of adhesive on the backings of cellophane, paper or other materials.
But there was another tough problem—rust and dust in the adhesive solvent caused the backing sheets to tear as they passed through the applicator machine. There were frequent costly shutdowns. How were they licked? By a Bowser Filter, which clears the solvent.
Visit other departments of this company and you'll find Bowser Lubrication and Filtration units, Fuel Oil Meters, etc., doing work that couldn't be done as well, if at all, by any other method.
The Paper Industry makes equally as varied use of Bowser Liquid Control Equipment. The major item is the Bowser Lubrication System, which is used by virtually all pulp and paper mills in the United States and Canada, as well as many in Europe, for lubricating dryers, calender stacks, Jordans, hydrafiners and turbines. Also widely used are many smaller Bowser units, such as force-feed lubricators, oil filters for steam engines, flow indicating devices, etc.
Bowser installations are engineered to become literally integral elements of the mills they serve. Write for complete information. BOWSER, INC., Fort Wayne 2, Indiana.
BOWSER
THE NAME THAT MEANS EXACT CONTROL OF LIQUIDS
Not only has Bowser's war production earned the Army-Navy E... Bowser equipment has helped earn it for scores of other companies.
BUY WAR BONDS

▶▶▶ The election of *William J. Bailey* as vice president of the West Virginia Pulp and Paper Company, Luke, Maryland. Mr. Bailey has been general traffic manager of the company for ten years. Last year he was placed in charge of the company's woodlands, purchasing and traffic departments.

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▶▶▶ At its recent meeting in Cleveland, the Multiple V-Belt Drive Association elected as its president *Walter A. Meyer,* Allis-Chalmers manager of dealer sales. Mr. Meyer has served as vice president and chairman of the executive committee of the Association, prior to his election to the presidency.

◆

▶▶▶ An announcement from Worthington Pump and Machinery Corporation, Harrison, New Jersey, states that *C. W. Camp,* formerly with Crocker-Wheeler Electric Manufacturing Company for 38 years, has been made consulting electrical engineer. Mr. Camp replaces the late Harry Wood. He is a former executive member of the National Association of Electrical Manufacturers, and brings to his new work with Worthington a wide background of experience in the electrical industry.

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▶▶▶ After a residence in Longview, Washington, for 13 years, *Edward P. Wood,* technical director of the pulp division of the Weyerhaeuser Timber Company in Longview, has resigned to become assistant manager of the pulp and paper mills of Hollingsworth and Whitney Company, Mobile, Alabama.

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▶▶▶ *Frank P. Silver,* formerly of the Bowater's Newfoundland Pulp and Paper Mills, Limited, is now assistant general superintendent at the Riverbend, Quebec, mill of Price Brothers and Company, Limited.

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▶▶▶ Allis - Chalmers, Milwaukee, Wisconsin, announces that *Frank C. Angle,* manager of its sales activities in the Pacific Region, has been appointed manager of all field sales offices of the general machinery division and their operations. He will continue to supervise operations of the Pacific Region.

◆

▶▶▶ *William J. Bailey,* traffic manager of the West Virginia Pulp and Paper Company, New York, has been elected a vice president. Mr. Bailey is well known in transportation circles and has been a prominent figure in the traffic activities of the American Paper and Pulp Association as a leading member of its traffic committee for many years.

◆

▶▶▶ A new member of the board of directors of Monsanto Chemical Company, St. Louis, is *Robert R. Cole,* vice president and general manager of the phosphate division. Mr. Cole fills the place on the board left vacant by the death of John C. Brooks, vice president and general manager of the company's plastics division.

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▶▶▶ Former district manager of the Storage Battery Division of Philco Corporation in Cleveland, *Fred G. Teufel* has been named midwestern sales manager of the Division which includes supervision of offices in Buffalo, Pittsburgh, Cincinnati, Detroit, Chicago, and Cleveland. He also becomes a member of the management staff at headquarters.

◆

▶▶▶ The resignation of *Richard W. Estabrook,* who has been acting as special assistant to the manager of the Paper Division of Brown Company, Berlin, New Hampshire, became effective September 24. Mr. Estabrook is now connected with Chicopee Manufacturing Company, and will be located at New Brunswick, New Jersey.

◆

▶▶▶ With Allis-Chalmers since 1926, *W. A. Meyer* has been appointed manager of dealer sales of that company. He succeeds *S. H. Gorham,* who has resigned. Mr. Meyer has served in the milling machinery, Texrope, and central sales departments. He has been particularly active in the field of multiple V-belt power transmission and is vice president and chairman of the executive committee of the Multiple V-belt Drive Association, and holds patents on V-belt splice and adjustable sheave developments.

◆

▶▶▶ Director of sales of the Pigments Department since 1942, and recently acting as assistant general manager, *John F. Daley* has been made general manager of the Pigments Department of E. I. du Pont de Nemours & Company, Wilmington, Delaware. Mr. Daley succeeds the late Carl H. Rupprecht.

◆

▶▶▶ Well known in the paper industry, *George H. Spencer,* formerly with E. D. Jones & Sons Company, Pittsfield, Massachusetts, and lately with Pusey and Jones Corporation, Wilmington, Delaware, has rejoined The Torrington Company, Torrington, Connecticut, as assistant to the head of the Research Department. It will be recalled that about nine years ago, The Torrington Company acquired the Bantam Bearings Corporation, South Bend, Indiana.

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▶▶▶ Recalled as chairman of the board of the Pittsburgh Plate Glass Company, *Clarence M. Brown* will fill the post left vacant by the late *H. S. Wherrett.* At the same meeting of the board, *Leland Hazard,* general counsel, was elected vice president, *H. B. Higgins,* president, was named chairman of the executive committee, and *H. B. Brown,* secretary, was elected to the board.

◆

▶▶▶ The appointment of *F. D. Taylor* as mill manager of the Red Rock, Ontario, Division of the Brompton Pulp and Paper Company has been announced. Mr. Taylor has been with the company for fourteen years. He is a graduate of McGill University (1928) and was for three years assistant mill chemist at the Hawkesbury mill of the Canadian International Paper Company. Since his connection with Brompton Pulp and Paper Company he has successively held the positions of chief chemist, night superintendent, assistant paper mill superintendent, assistant general superintendent and general superintendent.

◆

▶▶▶ Waterous Limited, of Brantford, Ontario, has appointed *Burl Branch* as general sales manager. Mr. Branch has been connected with the pulp and paper industry in the United States and Canada since 1908, and is well known in connection with barking drum developments and installations.

◆

▶▶▶ The appointment of *Laurence E. Cooney* as vice president and general sales manager of The Austin Company, Cleveland, has been announced. Mr. Cooney first joined the organization in 1919, and has held a number of important executive positions. He left Austin in 1941, but returned in 1943 as district sales manager.

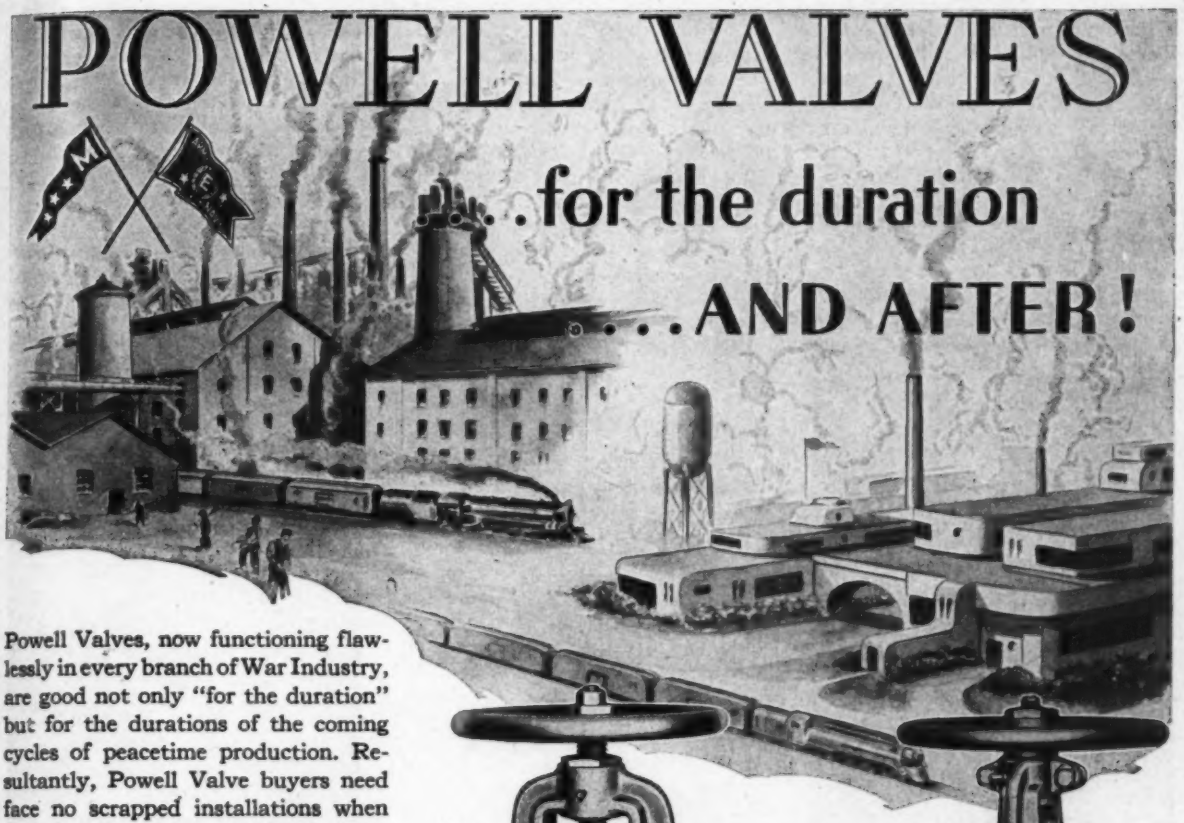
◆

▶▶▶ Announcement is made of the resignation of *Neville Beaton* from Wartime Shipbuilding, Limited, as division manager for Quebec and Maritime areas, and his appointment as assistant to the vice president of the

POWELL VALVES

. . . for the duration

. . . AND AFTER!



Powell Valves, now functioning flawlessly in every branch of War Industry, are good not only "for the duration" but for the durations of the coming cycles of peacetime production. Resultantly, Powell Valve buyers need face no scrapped installations when reconversion comes, whether it come by degrees or all at once.

The basic principle of efficient flow control is, at all times, the *right valve*, in the *right spot*, for the *right job*. It is on this principle that the complete POWELL Line of industrial valves of all types and materials has been developed through nearly a century of successful valve manufacture.

The Cast Steel Valves shown here are especially adapted for power plant service. The POWELL Line includes Steel Valves of all types for working pressures from 150 to 2500 pounds and Boiler Feed Line Valves for corresponding pressures.

The Wm. Powell Co.

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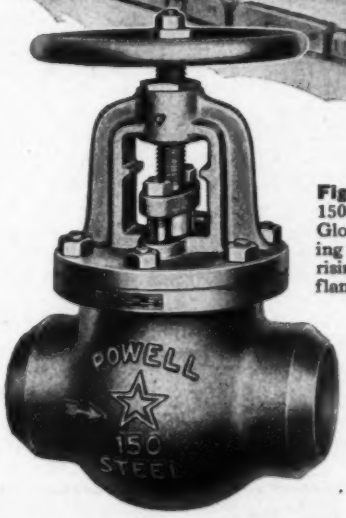

Fig. 1531 W.E.—Class 150-pound Cast Steel Globe Valve, with welding ends, outside screw rising stem and bolted flanged yoke.

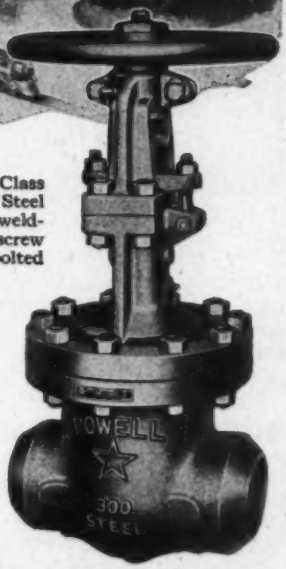

Fig. 3061 W. E.—Class 300-pound Cast Steel Swing Check Valve, with welding ends and bolted cap. When wide open, this valve affords a full, straightway, unobstructed flow area through the body.

Fig. 3003 W. E.—Class 300-pound Cast Steel Gate Valve, with welding ends, outside screw rising stem, two-piece bolted flanged yoke and taper wedge solid disc.

POWELL VALVES

Marathon Paper Mills, of Canada, Limited, Toronto. Mr. Beaton was resident engineer with the Powell River Company of British Columbia before joining Wartime Shipbuilding, Limited.

◆

▶▶▶ The appointment of *James M. McAlear* to head its Paper and Pulp Mill Division has been announced by Mason-Neilan Regulator Company, Boston. Mr. McAlear is well known to the industry throughout the Middle

J. M. McAlear

West, having specialized in the application of Masoneilan Controls to pulp production and papermaking during five years at the company's Chicago office. His headquarters are at the home office in Boston.

◆

DONALD S. DAVIS MADE EXEC. SECRETARY OF M AND O PAPER CO.

A late announcement from the Minnesota and Ontario Paper Company, Minneapolis, Minnesota, states that Donald S. Davis, who for the past two years has served as vice chairman of the War Production Board in Washington, has been elected to the office of Executive Vice President of M and O. Mr. Davis was formerly president of General Mills, Inc. He expects to assume his new duties on or about November 1.

In 1917, Mr. Davis was executive secretary of the milling division of the United States Food Administration. He left that work to join the Army Air Service, serving as a major until after World War I. In 1922, he was made secretary of Washburn Crosby Company, Minneapolis, and was successively secretary and treasurer of the company until he became vice president and treasurer of General Mills, Inc., in 1928 on its formation. In 1934, he was elected president of General Mills, holding that office until December, 1942, when he resigned to become vice chairman of WPB.

The announcement states it is expected that at the next annual meeting in May, 1945, Mr. Davis will be elected president of M and O and its subsidiaries. In that office he will succeed R. H. M. Robinson, who has served as president since the reorganization of the company on March 1, 1941. At that time, Mr. Robinson will become chairman of the board.

◆

TOM O'FLYNN LEAVES WARDLOW THOMAS FOR NEW PUERTO RICO MILL

Word from Tom O'Flynn, formerly superintendent of The Wardlow Thomas Paper Company, Middletown, Ohio, is that sometime this month he will leave for Puerto Rico to be manager and superintendent of the Puerto Rico Pulp and Paper Corporation, Sabana Ward, Guaynabo, Puerto Rico.

Mr. O'Flynn states he will first be occupied with supervising the installation of machinery in the new plant there (Cf. P. I. & P. W. May, 1944), which it is hoped will be ready to go into production within the next few months. Mr. O'Flynn gives his new address as care of the company, 55 Allen Street, San Juan 12, Puerto Rico.

◆

▶▶▶ In January, 1944, *J. H. Jewell* was made assistant manager of the Industry Departments of Westinghouse Electric and Manufacturing Company, Pittsburgh. A late announcement states that Mr. Jewell has now been advanced to the position as manager of the Industry Departments. He has been a member of the Westinghouse organization since joining the company training course in 1920 as a sales student.

James H. Jewell

◆

▶▶▶ Formerly with the Investment Department of the Sun Life Assurance Company of Canada, *F. T. Webb* has been elected secretary of Bates Valve Bag Company, Limited, the Canadian

F. T. Webb

subsidiary of St. Regis Paper Company. For 19 years, Mr. Webb was the pulp and paper security specialist of the Sun company.

◆

▶▶▶ The resignation of *H. Grinstad*, connected with the Brompton Pulp and Paper Company for many years, has been announced. He was general superintendent of the East Angus, Quebec, mills, and active manager of the Red Rock, Ontario, Division of the Company. Mr. Grinstad, whose health has given him some concern, will rest for a period before undertaking other duties.

◆

WMC MICH. DIRECTOR NOW WITH THE LABOR RELATIONS INSTITUTE

Former director of the War Manpower Commission for the State of Michigan, Montague A. Clark, has joined the Management Engineering Division of the Labor Relations Institute, and will direct its labor relations and negotiations activities in behalf of employers in the States of Michigan and Ohio. O. C. Cool, director of the Institute, who made the announcement, states that Mr. Clark will make

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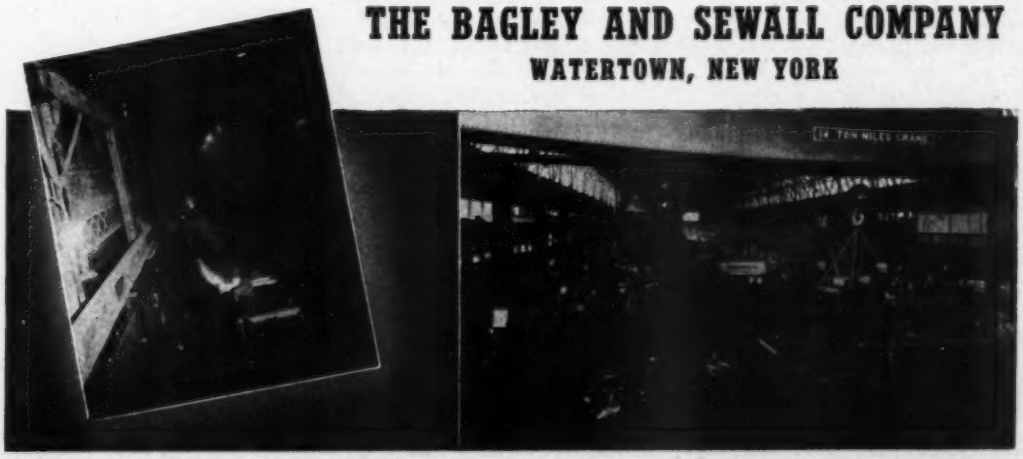

his headquarters at the organization's Detroit office.

Mr. Clark has served as an industry member on numerous regional War Labor Board panels, and has been dealing with employee representation problems since 1916. From 1930 to 1943 he served as manager of industrial and public relations of the United States Rubber Company.

◆

GEO. WINLOW HONORED ON COMPLETING 50 YRS. IN CANADIAN INDUSTRY

A complimentary dinner was recently tendered to George C. Winlow, former general sales manager of J. R. Booth, Limited, at the Chateau Laurier, Ottawa, on the double occasion of his completing 50 years in the Canadian paper industry and his appointment as director of sales, as well as a director, of the E. B. Eddy Company, Limited, Hull, Quebec.

Mr. Winlow, one of the best known executives of the paper industry in Canada, has been associated with the industry since 1894. Starting with the old Canada Paper Company of Montreal, he has seen paper making grow to a colossal industry employing upwards of 100,000 men and with a yearly turnover of $200,000,000. In 1933, Mr. Winlow was appointed sales manager of the Lincoln (now Alliance) Paper Mills. In 1935, he was appointed general sales manager for J. R. Booth, Limited, at Ottawa.

◆

▶▶▶ The General Electric Company, Schenectady, New York, announces that *Owen D. Young* and *Gerard Swope* resigned as chairman of the board and president respectively, and *Charles E. Wilson* was re-elected president by the board of directors at its recent meeting. No announcement of a successor to Mr. Young as chairman was made.

Necrology

DOUGLAS C. McMURTRIE

Famed as an authority on typography, Douglas C. McMurtrie passed away suddenly September 29 at his home in Evanston, Illinois.

Mr. McMurtrie was director of typography for the Ludlow Typograph Company. He was widely known for his work in designing typography, and for creating a number of popular type faces, and he was the author of a number of books on the history and technique of the graphic arts. Mr. McMurtrie also was in demand as a lecturer.

He is survived by his widow, two sons and a daughter.

◆

CARL H. RUPPRECHT

Throughout his business life, Carl H. Rupprecht was identified with the pigments and dry colors industry. When he passed away on September 10 he was general manager of the Pigments Department of E. I. du Pont de Nemours & Company, Wilmington, Delaware. Mr. Rupprecht was 57 years of age.

After having spent several years with color manufacturers, Mr. Rupprecht joined Du Pont in 1919 as a part of the Sales Department in Chicago. He was made sales manager in Chicago in 1920; district sales manager, the same office, in 1921; and general sales manager in Wilmington in 1924. Shortly after Du Pont acquired the Grasselli Chemical Company, Mr. Rupprecht was made sales manager of its Pigments Division in 1929, with headquarters in Cleveland. He became manager of what was then the Du Pont company Pigments Division in 1930, with headquarters at Newark.

In 1931, the titanium pigments business of the Commercial Pigments Corporation was consolidated with the lithopone and dry color interest of the Du Pont Company to form the Krebs Pigment and Color Corporation, and Mr. Rupprecht was elected president of the Krebs corporation. When the Krebs Pigments Department was established in 1935, he was named general manager. That department was renamed the Pigments Department in January, 1943.

◆

WALTER SAVAGE LANDIS

Vice president of the American Cyanamid Company, Dr. Walter Savage Landis, passed away September 15 at his home in Old Greenwich, Connecticut. He was 63 years of age.

Recipient of three of the highest awards bestowed by the chemical industry, Dr. Landis held nearly 60 patents in the chemical and metallurgical fields and held office in numerous professional societies.

In recognition of his many contributions to chemical and metallurgical progress, Dr. Landis received many honors, including the Chemical Industry Medal from the American Section of the Society of Chemical Industry in 1936; the Perkin Medal of the Society of Chemical Industry for 1939, and the American Institute of Chemists' Medal in 1943. He also was author of a number of textbooks and scientific articles and publications, and was a trustee of Lehigh.

Surviving are the widow and two sons.

◆

SIDNEY L. WILLSON

In Washington, D. C., where he had gone for treatment, Sidney L. Willson, a past president of the American Paper and Pulp Association, passed away October 8. Mr. Willson's home was in Holyoke, Massachusetts. He was 77 years of age.

Sidney L. Willson

Mr. Willson was born in Dunkirk, New York. He spent several years with paper companies following the merchandising of paper. During World War I, he was chief of the manufacturing section of the paper division of the War Industries Board. He served as vice president and receiver for the American Writing Paper Company, and became its president in 1923.

In 1925, Mr. Willson was made president of the American Paper and Pulp Association, and in 1937, following the reorganization of the American Writing Paper Company, he resigned as its president. The company name was then changed to American Writing Paper Corporation.

Mr. Willson was the A.P.P.A. delegate to the Paper Chemists and Engineers Association's convention in Heidelberg in June, 1928. He was named by President Hoover to the advisory sub-committee in planning a national industrial program in 1929.

He is survived by his widow and a half brother, Vice Admiral Russell Willson, USN, who was one of the American representatives at the Dumbarton Oaks Conference.

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Plant engineers throughout the country agree that Masoneilan control equipment helps the paper industry keep producing. They know from experience that the reliability, simplicity and accurate operation of Masoneilan equipment enable operators to produce more paper with less waste and rejects.

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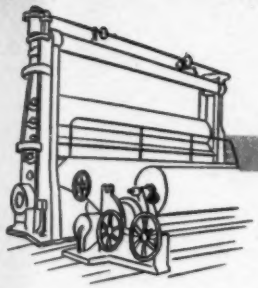
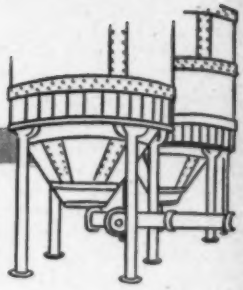
BRONZE, IRON, STEEL AND CORROSION RESISTANT ALLOY VALVES, 125 TO 2500 LB. S.P.;
BOILER MOUNTINGS, LUBRICATING DEVICES, AIRCRAFT FITTINGS



Practical SHORTS



Readers are invited to submit short, practical articles for this department. The items should be original and should relate to ways and means of handling production and maintenance jobs. Where possible, articles should be illustrated. Rough sketches only are required. Payment will be made for acceptable items upon publication.

History of Acetylene

Acetylene was discovered in 1836 by an Englishman named Edmund Davy, a cousin and co-worker of the noted scientist, Sir Humphrey Davy. It was destined however to remain a mere laboratory curiosity until calcium carbide, from which it is made, was developed commercially near the turn of the century by James T. Morehead and Thomas L. Willson.

The first important commercial use of acetylene was for street-lighting purposes in towns and villages and for lighting rural homes. Another early use was for automobile headlighting, and also for miners' cap lamps. It was not used for oxy-acetylene welding and cutting, until early in the 1900's when the first successful oxy-acetylene blowpipe was developed and when high-purity oxygen began to be produced commercially by the fractional distillation of liquid air.

Welding and cutting, however, did not really come into their own until the great impetus given them by the first World War. From that time on acetylene has constantly increased in importance until today it is a commodity that is indispensable not only to the metal-working industry, but to the chemical and other allied industries as well.—*Oxy-Acetylene Tips* (January, 1943).

◆

Positioning of Paper Machine Showers

A shower should be properly located in relation to each roll to wash the roll surface and also to lubricate the edge of the roll doctor blade. Good doctors are considered essential on all outside rolls to insure complete removal of stock from the surface of the rolls. When inside rolls are doctored, arrangements should be made to flow the shower water and stock to the ends of the doctor. This step is important to prevent stock from falling onto the wire.

Shower water should be supplied under a constant pressure at all times while the wire is running. The water pressure should be adequate to do the job for which it is intended. Variations in pressure may allow stock, and particularly the edge trim, to pass through to the return rolls and damage the wire. All showers playing directly on the wire should be shut off when the wire is stopped for any length of time. It is considered good practice to test periodically the shower water supply for grit and any injurious materials.

Referring to Figure 1: Position No. 1 illustrates what happens to the sheet (dotted line) when a break occurs. If the sheet does not fall away completely from the wire, it will tend to bunch or collect in the nip, between the doctor or wash roll and wire, causing the wire to ridge. For heavy sheets showers should be placed at the No. 1 position as illustrated in the sketch. This is advisable as the weight of the sheet plus the shower will free it from the wire.

It is difficult to completely remove lighter sheets at this point. It is, therefore, advisable to permit the entire sheet to carry intact over the doctor roll, and then to be couched or washed away by a shower at position No. 3. Note that this shower is placed beyond the center line of the roll, toward the breast roll, thus permitting the maximum use of the water to wash the stock away from the wire.

Position No. 4 indicates the incorrect position of an inside shower as in this case the water must be forced through the wire by the roll. This condition causes bowing and wrinkling of the wires. Felts bow for the same reason. The shower should be placed as indicated by position No. 5.

Fresh water showers can be used, without dilution of the stock in the pit, by arranging troughs or save-alls under the rolls as illustrated in position No. 6. This arrangement will permit the use of fresh water at a minimum cost; save the use of white water; and eliminate the over-burdening of the filters, settling tanks and pumps in the handling of white water. The troughs can be used for the application of cleaning solutions for the removal of pitch, etc. If built of wood, they can be used for souring or caustic soda solutions.

The loading of the edges will cause the wire to become stiff and, because of the lack of pliability, it will have a tendency to crack. Auxiliary showers about a minimum of 6 inches long (Figure 2), on both edges at position No. 2 (Figure 1), are very effective for washing away the trim and keeping clean the edges of the wire. When deckle straps are used and the wire edges are loaded, there is an abrasive action which results in excessive wear. Clean edges will reduce to a minimum the loss of production when a machine has to be shut down for sewing or trimming.—EASTWOOD-NEALLEY CORPORATION.

◆

18 Don'ts for Hydraulic and Pneumatic Packings

1—Don't use concave seats under packings. Squared seats are better under all conditions and never cut the heel of a packing when wear increases the unsupported area or clearance.

2—Don't use unsealed bolts. Lead washers or gaskets save many mysterious leaks.

3—Don't mount packings without grooving metal grips. Light grooves turned into the surface of a plunger and follower, the faces of piston plates and followers or the space rings for flange packings often prevent packing failure.

4—Don't expect leather to span a 1/8"-gap because a loose plunger floats against the opposite wall of the cylinder. Use fabric or leather heel pads under the packing to take the pinch under such conditions.

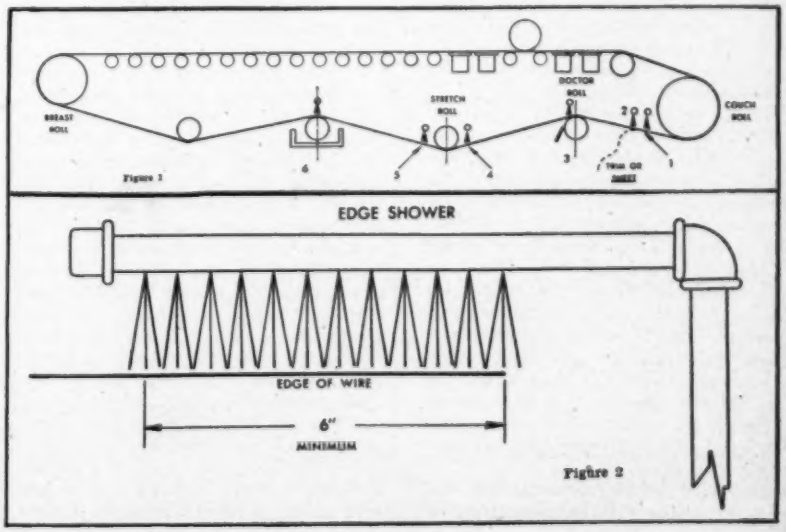


Figure 1

Figure 2

5—Don't let clearance eat up packings in scored cylinders or plungers. When packings edge on one side, metal to metal contact on the other causes scoring and an increase of clearance. Reboring and plunger replacement will save conditions of this sort.

6—Don't work leather packings over rough or scored metal surfaces. No packings, either leather lip packings or compression packings of any sort will give service under such conditions. Any packings on a rough score surface cost about the same. Plunger rods or cylinders should be resurfaced and polished.

7—Don't order packings to special heel radius—special moulds are costly. Manufacturers form the heels or corners of leather packings—whether "U," flange or cup—to approximately a standard radius which is far better for service than some of the special curves requested.

8—Don't order special lip bevels having long thin included angles; 30 degrees lip angle or 60 degrees included angle is practically standard with all manufacturers and is ample for any packings. If sensitive packings are required, reduce the packing thickness.

9—Don't recut lip bevels to make hard packings seal. Hard packings may be immersed in warm oil—softened so as to seal more readily. Softer packings should be specified in such cases.

10—Don't use springs inside a cup or around a flange which develop enough pressure to wear the packing. Springs should be designed with just enough pressure to hold the packing lightly against the metal surface so as to produce a seal as quickly as possible.

11—Don't design low pressure packings without springs. For low pressures or built up pressure, light contact is required to maintain the seal, particularly if the supply is low.

12—Don't move packings at high speeds over rough surfaces. Even on the smoothest surface, packings must be thoroughly lubricated to stand high speeds and lip pressure must always be reduced as the speed increases.

13—Don't use leather in temperature over 180 Fahr. Some leather stands more temperature than others but in general, leather packings will not give service under heat conditions.

14—Don't fill a recess or stuffing box solid with V-packings. There is no lip action. Each V-packing of a series will be free to seal under the pressure of the medium—oil or water. Compression or adjustment only causes wear and the V-packing principle is not operative when the sections are pressed solid.

15—Don't use leather for compression packings. Leather glazes under tremendous pressure caused by section distortion under gland ring adjustment and often reaches many times the pressure being sealed. Lip seal is more economical and better design. Adapter rings can be made to accommodate lip seal packings in practically any stuffing box or recess.

16—Don't adjust automatic lip seal packings. Adjustment or compression on automatic lip seal packing produces extrusion—compression which causes wear far beyond the natural amount. Packings should be designed so that no adjustment is possible and only enough pressure on the gripped surfaces to hold the packings in place.

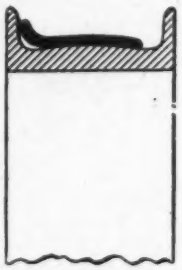
17—Don't blame leaks in metal joints on leather packings. Use lead gaskets to see that all metal joints are tight.

18—Don't depend on the plunger for guide bearings in the cylinder neck. Proper guides should be supplied independent of the plunger so that plunger surfaces can be kept smooth and true.—CHICAGO BELTING COMPANY.

◆

How to Avoid Belt Troubles on Flanged Pulleys

When flanged pulleys are not properly aligned, the accompanying sketch shows what often happens, or is likely to happen. The belt tries to climb one of the flanges, and as a result the climbing edge of the belt becomes worn and frayed, or it stretches. Sometimes the belt actually succeeds in climbing the flange and jumping off the pulley.



This "climbing action" is commonly caused by belt dressing or dirt accumulating on the pulley. The accumulation piles up until it is higher than the pulley crown, and since a belt always moves over to the higher side, it is thereby pulled over against the flange. To avoid such behavior, be sure that the pulley is amply wide so that the edges of the belt do not touch the flanges when alignment is correct. Then maintain true alignment, and keep the surfaces of the pulley face and belt clean.—W. F. SCHAPHORST.

◆

Rules for Storing Coal

The size of coal stored depends on what size the individual plant requires, and any size may be stored safely.

In brief, the rules for storing coal are:

1) If the storage is on the ground, the surface should be smooth and free from cinders, ashes, coke, etc. Coke and cinders have been blamed for helping spontaneous combustion, and it may be possible that they do. A little preparation will help tremendously in recovering the coal and will reduce the danger of spontaneous heating.

2) Surface drainage should be away from the coal pile and care should be taken that oil, cutting compounds, and other plant wastes should not be allowed to drain toward the coal. The coal should not be piled over any lines which may be hot. Underground steam lines, sewers carrying hot water, as from the boiler blow-downs, etc., should be avoided, if at all possible.

It might be better to break the pile and not place coal over such a source of heat even though it seems very slight. Only a few degrees, perhaps fifty, above summer temperature are necessary to cause serious heating. This particularly is true of bituminous B and lower rank coals.

3) Coal should be piled in layers rather than in a conical pile. The conveyor discharge, spout, or whatever means of piling is used should be moved if possible so that the coal is distributed over the area to be covered as it is unloaded. When a clamshell bucket is used, or a bulldozer is available, this process is very simple. A scoop or similar device used with an industrial tractor also may be used. This will help prevent heating and also will prevent segregation. The coal will be much more uniform in mixture when removed.

4) Compacting the pile seems to prevent heating and should be done in case of large piles, particularly.

There is no exact data, as far as we have been able to determine on how large or how deep a pile may be before compacting is necessary.

The length of time the coal is to be in storage also has a great bearing on this as well as other factors in storage.

5) Height of the pile is also largely indeterminate. A maximum height of 20 feet has been a rule in several plants, and has been satisfactory for them. We believe that compacting should be used of it is necessary to go above this height.

6) Pipes which may be used for temperature measurement should be inserted in large piles and the temperatures checked weekly. These pipes may be discarded piping, boiler tubes, or anything that is available. The size is not important. The authors have used pipes on 25 ft. centers, although it might be advisable to make them closer if storing low grade coal.

7) Sealing should be done on large piles or on piles of lower grade coals which are likely to be in storage for a long period. An increasing number of mines in all mining districts now air clean coal, and it is probable that -30, -40, or -48 mesh coal can be obtained from the regular source of supply for this purpose. Large piles which are not sealed when built should have the slopes trimmed so that sealing with fine coal will be a comparatively simple operation.

If these few simple rules are put into practice, then the plant may expect little trouble from the storing of coal, and reap the advantages of continuous operation and hedge against price advances. "Storing Bituminous Coal," by J. E. Tobey and C. F. Hardy, THE PAPER INDUSTRY AND PAPER WORLD (November, 1940, p. 789).

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Fire Prevention

Good housekeeping is the most important element in fire prevention. Accumulations of oily wastes, rags, or rubbish of any kind under benches or stairways or in clothes lockers or other places are dangerous fire breeders. Spontaneous ignition, a spark from some process, or a carelessly dropped match or cigarette butt may cause such materials to flash up any time. Therefore, put all inflammable waste materials in metal cans and see that they are emptied daily.

Good housekeeping requires clear aisles, with stock piled neatly, safely and well below sprinkler heads. Fire doors must be left unobstructed and free to operate. A clear passageway should be left in front of extinguishers and other fire-fighting equipment.

Observe these rules:

1. Properly safeguard, segregate if necessary, hazardous materials and operations.

2. Maintain all equipment, particularly electrical, in good condition.

3. Enforce "No Smoking" rules.

4. Observe necessary precautions around cutting and welding operations, especially in the plant.

5. Educate workers in the vital importance of fire prevention.

Successful fighting of fires requires an adequate amount of suitable fire-fighting equipment and an organization trained in its use. A properly designed sprinkler system is one of the most effective items of fire-fighting equipment for manufacturing property. Well maintained, it can be depended upon to snuff out or control fire.

Sprinklers should be supplemented with other types of equipment, such as conveniently placed pails of water or sand, hose lines, and extinguishers.

Portable fire extinguishers are of several types, such as soda-acid, foam, vaporizing liquid (usually carbon tetrachloride), and carbon dioxide. Each type has advantages that fit it for use in certain locations or in fighting one of several classes of fires.

The first step in organizing a plant fire brigade is to appoint as chief someone who has the necessary time and interest and can do a good job.

Train the watchmen, the foremen, and a suitable number of men in each department in the use of extinguishers and of other fire-fighting equipment. Make sure they know where all fire alarm boxes are, and how to operate them.

Insist that watchmen and others turn in an alarm at once upon the outbreak of a fire that cannot be put out immediately. Disregard of this principle frequently results in disastrous fires.

Instruct key employees and watchmen not to shut off sprinklers until the fire is completely extinguished.

See that a responsible employee patrols unprotected areas after sprinklers have been shut off, to see that no fire remains. Post a man at the closed valve. Make sure that open sprinkler heads are replaced and protection restored promptly after a fire.

Provide for quick and safe evacuation of employees in the event of fire.—*Plant Efficiency*, WAR PRODUCTION BOARD, DIVISION OF INFORMATION.

◆

Heating Up a New Furnace

A new furnace should be heated slowly, with provision for a sufficient volume of circulating air, so that the moisture will be driven off gradually. The formation of steam in the pores of a brick, due to rapid heating, or in the mortar between the brick, may cause serious damage to a lining. A furnace temperature should not be raised above 400 to 575 Fahr., or about 200 to 300 C., until all steaming from the drying mortar has ceased. A flame which "licks" against the brickwork during the heating up period may cause rapid local expansion with consequent spalling. Especial care should be exercised in the heating of silica or magnesite brick because of their tendency to spall when subjected to rapid temperature changes. This tendency results from the magnitude of their thermal expansions. The expansion of magnesite is fairly constant over the entire temperature range. In the case of silica brick, however, expansion is practically complete at 1100 Fahr., or about 600 C. It should be borne in mind that this represents actual brick temperature, and not the inside temperature of the furnace. A silica brick wall will usually continue to expand until the furnace reaches a temperature of about 1750 Fahr. (about 950 C.), since the mean temperature of the brick is necessarily much lower than is the operating temperature of the furnace.—*Modern Refractory Practice*, HARBISON-WALKER REFRACTORIES COMPANY.

How to Obtain Greater Efficiency and Make Heavy Planer Knives Last Longer

Failure	Cause	Correction
Cracks on cutting edge	Overheating when grinding	Clean knives thoroughly before and after grinding. Use a soft, fine grain stone. If wet grinding is employed, use a strong force of water or other coolant. Some knives are of a temper to file in which case they may be filed in the head. After filing, remove fash and hone.
Bent or broken at bottom of slots.	Uneven bearings in head, worn bolts or irregular pressure on knives	Clean heads thoroughly so that knives have a good solid, even backing. Check bolts and washers, see that they have an even bearing all around the slots in knives.
Out of balance	Not properly fitted in head	Knives should be balanced in sets. Use set gauge to be sure all knives are evenly seated in head.
Knives heating	Knives dull	Keep knives sharp.
	Incorrect bevel	The length of bevel varies according to lumber to be cut usually 30 to 40 degrees

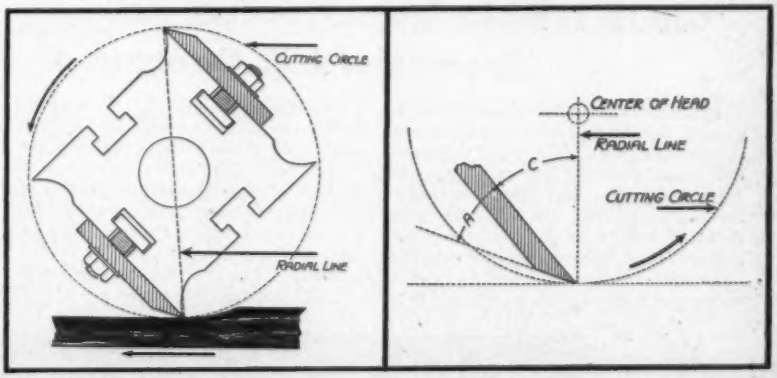
In machines with square heads thick, or heavy, knives are commonly used; though some users employ thin knives under caps. The knives usually are set on the head at an angle of 40 degrees from the radial line. The radial line is the line from the cutting edge of the knife through the center of the head.

These knives are ground with a single bevel, known as the *clearance* bevel which varies from 30 to 42 degrees. The accompanying illustration shows how this type head operates and how the knives are attached to the head.

In the operation of square head machines, two or four knives are employed. Some knives of this type are run with as great a bevel as 42 degrees. Some millmen claim that bevels less than 30 degrees will test out small knots and raise the grain of the wood. The soft woods like white pine, etc., will stand a longer bevel than the harder woods.

In general, it is a good rule never to make the bevel more than twice as long as the knife is thick. In other words, with a knife ¼ of an inch thick, the bevel should not be more than ½ of an inch in length. This provides a bevel of 30 degrees and leaves sufficient metal to stand the strain of cutting.

The accompanying illustration shows diagrammatically the angles and how the heavy knife cuts in ahead of the square type.—HENRY DISSTON & SONS, INC.



Left—Square type head showing how knife sets on head. Right—Showing how square head knife cuts: A—Clearing Bevel, C—Cutting Angle.

Annual Meeting of American Chemical Society

▶▶▶ THE ANNUAL MEETING of the American Chemical Society was held in New York City, September 11-15, with the North New Jersey Section acting as host. Reports regarding the attendance vary, but one claims that for one day at least 8,700 men and women were registered. This would place the meeting as probably the largest single meeting of chemists ever held.

One of the most dramatic incidents of the meeting was the presentation to the Society of the entire lucrative Universal Oil Products Corporation, a research organization previously owned by a number of large oil companies. What the American Chemical Society will do with this new bonanza is still problematical.

The Division of Cellulose Chemistry enjoyed a number of interesting papers. Acetic-acid spruce lignin was ably discussed by Buchanan and Brauns of the Institute of Paper Chemistry. Lignin can be extracted from wood by acetic acid in the presence of magnesium chloride, and the authors reported on the chemical properties of this product. Saeman, Bubl and Harris of the Forest Products Laboratory discussed the quantitative saccharification of wood in two stages. The first involves treatment with the usual 72% sulphuric acid at 30 deg. This is followed by a secondary hydrolysis with 3% acid for 1 hour in an autoclave or for 4 hours at the boiling point. They tabulated data showing the potential reducing sugars of 15 wood species. Another paper from the Forest Products Laboratory took up the analysis of wood sugars. (These papers as well as others mentioned later are of interest because, in some instances in rayon pulp manufacture, prehydrolysis before pulping may be resorted to.)

Another paper presented at the Divisional Meeting had to do with the utilization of lignocellulosic residue. This was a general report by Robert Aries.

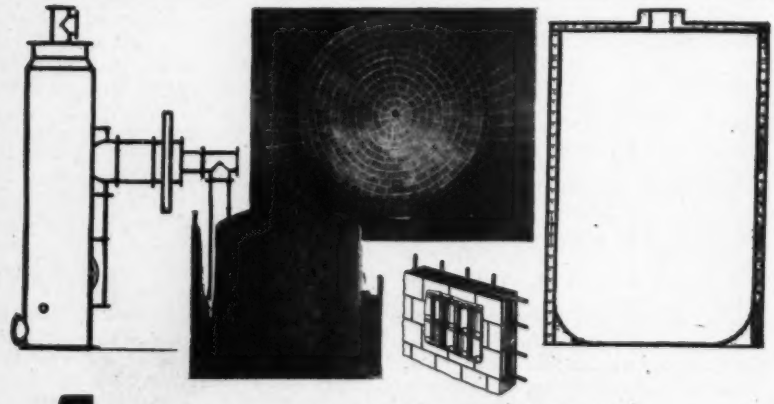
Tuesday, the Division had an important symposium on plastics. This cannot be abstracted in detail. As usual, Professor Berl presided. Dr. Hermann Mark, of the Polytechnic Institute of Brooklyn, reported on recent progress in the field of cellulose chemistry. It was interesting to note that certain investigations involved the use of deuterium (heavy hydrogen) in exchange with the ordinary hydrogen of cellulose hydroxyl groups. Chemists from the Hercules Powder Company spoke of the characterization of cellulose derivatives by their solution properties. The National Bureau of Standards, represented by Drs. Sookne and Harris, submitted an article on the mechanical properties of cellulose acetate as related to chain length. Interchain order and orientation in cellulose esters was discussed by W. O. Baker of the Bell Telephone Company.

An important article on paperbase laminates was read by Dr. H. F. Lewis of the Institute of Paper Chemistry and was the joint work of Drs. Lewis and Howells. The authors pointed out the production of modern laminates from impregnated papers at pressures below 250 psi. with resin contents of 35-40% where phenolic resins were used. The effects of variations in paper impregnation, curing, resins and laminating conditions on the properties and possible uses of the laminated product were discussed. The following facts were pointed out: the paper which yields high-strength laminates appears to be the result of a combination of conditions in the pulping and papermaking operations, the variables of which are imperfectly known. Pulping and purification affect chemical composition, fiber strength, fiber surfaces, and the papermaking operations control the physical structure of the paper web which then affects the fiber-to-fiber and the resin-to-fiber contacts, the physical condition of the fiber elements, and the path followed by the resin during impregnation. The types of resin are also important. The low edgewise impact of phenolic resins and furane resins is the principal drawback. On the other hand, thermoplastics have low tensile strengths and absorb water markedly. The reasons for these differences in behavior were discussed. Wood veneer and cloth combined with phenolic resin laminates improve impact strength.

The basic phenomena associated with impact testing and their relationship to the structure and composition of plastics were treated by D. R. Morey of The Eastman Kodak Company. The representatives of the Celanese Corporation, Dr. Ball and associates, spoke on the effect of the preparation of specimens on the physical properties of cellulose molding compounds. The high speed testing of plastics was discussed by Kropscott and Lipke of the Dow Chemical Company, and the Tennessee Eastman Corporation chemists, Meyer and Gearhart presented a paper on the weather resistance of plastics.

An impressive symposium held jointly with the Division of Sugar Chemistry and Technology was on sugars obtained from wood. Inasmuch as sugars are also obtained in chemical pulping processes and as their production involves wood waste and leads to alcohol and feedstuff production brief mention of these papers must be made. The development of the Scholler (acid) process for saccharification of wood was outlined in two articles, one by W. L. Faith of the WPB, of Washington, and the other by Sherrard and Kressman of the Forest Products Laboratory.

C. A. Sankey then discussed the production of ethyl alcohol from waste sulphite liquor at the plant of the Ontario Paper Company, Ltd., at Thorold, Canada. Here the fermentation process used is that of "reused yeast" in which the fermented



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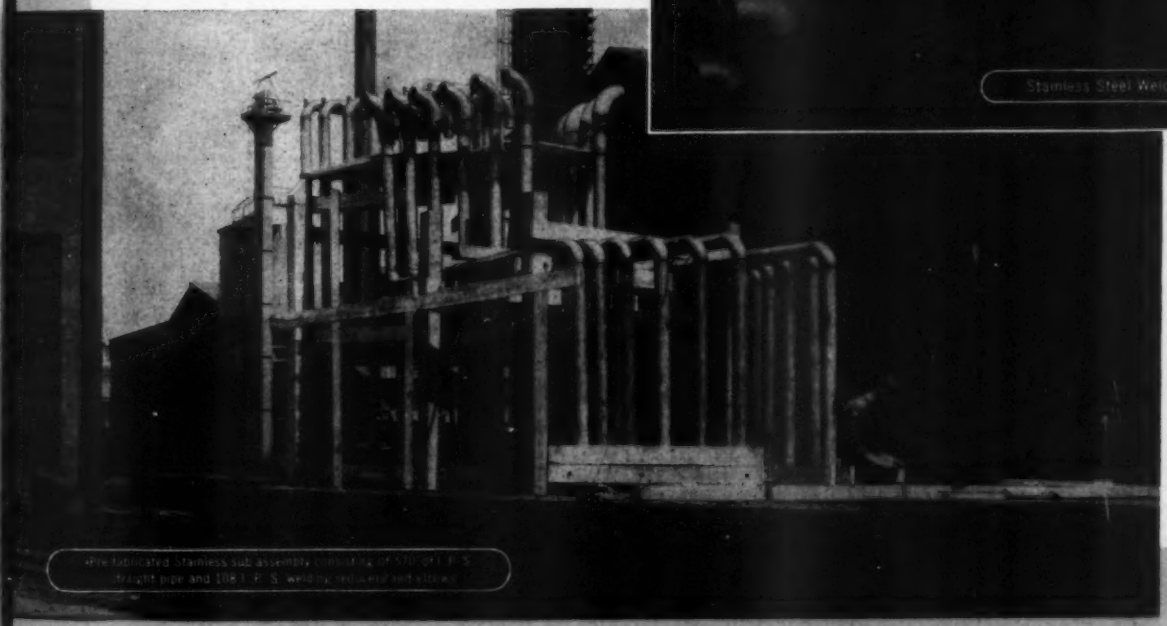

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wort is passed through a centrifugal separator prior to distillation and the yeast is returned to the process at the start of a subsequent fermentation in the operating cycle. This is especially advantageous in the fermentation of dilute sugar solutions such as those found in sulphite waste liquors. Added nutrients are slight and alcohol yields are increased. The Ontario plant still uses yeast that has been recycled over 250 times. Dr. Sankey gave data on plant performance and also on the quality of the product obtained.

Several more papers on wood hydrolysis in stationary and rotary digesters were presented by chemists from the Forest Products Laboratory, as well as on the kinetics of the hydrolysis of wood and the decomposition of sugars by dilute acids at high temperatures. A continuous process for the saccharification of agricultural wastes was described by Dunning and Lathrop of the Northern Regional Research Laboratory, which first hydrolysis pentosans with dilute acids and then hydroylzes cellulose by a new concentrated acid process that requires less than one fourth of the acid demanded by other concentrated acid processes.

A very complete picture of fodder yeast production from wood sugar was given by Dr. W. H. Peterson, of the University of Wisconsin. Wood hydrolyzates were prepared at the Forest Products Laboratory. These represented 20 species of wood (a number of them being important pulpwoods). The yeast yields were determined and Dr. Peterson discussed the various factors influencing the fermentations. These included the pretreatment of the hydrolyzate, the species used, the acclimatization of the yeast, pH, time, temperature, aeration, and growth factors—all of which were investigated. The fermentations ranged from laboratory experiments to 150 gallon pilot plant runs. The best results were obtained with acclimatized strains of *Torula utilis* and *Candida albicans* which utilize both hexoses and pentoses. The yeast yields ranged from 35-40 per cent of the total reducing sugars in the hydrolyzates. Whereas spruce and the Southern pines gave good returns, Douglas fir gave hydrolyzates that were difficult to ferment. The hardwoods however gave very good results—equal to those of the best softwoods.

The symposium also included several more general papers. Thus the formation of by-products of wood saccharification was outlined by R. L. Hasche of the Tennessee Eastman Corporation and the economic aspects were reviewed by R. S. Aries.

Scattered throughout the meeting were papers of interest to the pulp and paper industry. For example, before the Division of Water, Sewage, and Sanitation Chemistry, Dr. H. K. Benson, of the University of Washington, and Dr. A. A. Anderson, of Shell Oil, described a colorimetric determination of sulphite waste liquor in sea water, or in fresh water. The method depends on the formation of tinctorial reddish brown nitroso-lignin by means of nitrous acid. The general principles have been known previously and the present paper gives additions and refinements using a stable secondary color formation in alkaline solution which is extremely stable. The recommended procedure may be given as follows:—Add to 50 mil. of sample 1 mil. each of 20 per cent (by volume) acetic acid and 5 per cent (by weight) of sodium nitrite. After 10 minutes have elapsed add 2 mil. 20 per cent (by weight) of sodium carbonate. After shaking, the treated sample may be compared with color standards or the depth of color may be read in a colorimeter.

In this same Division, H. W. Gehm, of the National Council for Stream Improvement, gave an interesting paper on heat economies effected by white water recovery. In a mill producing several types of box board from clean stock and using an efficient fiber recovery system, the return of clarified white water amounted to about 75 per cent of the total and the heat saving effected was 48 cents per ton of product. This was simply one example of data given in an important paper.

Mention should also be made of a symposium on "bench-scale techniques" held by the Division of Petroleum Chemistry. These included papers on the bearing corrosion characteristics of lubricating oils (from the Standard Oil Company of Indiana), the laboratory evaluation of oil deterioration (from the Shell Development Company), and laboratory evaluation of oil deterioration in engines (from the Standard Oil Company of Ohio).

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A unit process symposium was held by the Division of Industrial and Engineering Chemistry. Here again, the utilization of waste liquors from wood hydrolysis was discussed—this time by Othmer and his co-workers at the Polytechnic Institute at Brooklyn. There were several interesting papers on pilot plants and their application to industry—one presented by Vibrandt of Virginia Polytechnic Institute, another by Rushton, of the University of Virginia. In this same meeting, Carter, of the Hercules Powder Company spoke of their important rosin esters development, and the part played by pilot plants. Practically an entire day was devoted by this Division to a symposium on inhibitors for the control of scale and corrosion in water, a part of which might be of interest to the paper industry, but abstracts of which are not justified here.

When we consider that brief abstracts of the *entire* meeting covered well over two hundred pages of single-spaced planographing, it is evident that the above resume gives only a very few highlights of this greatest of all chemical meetings.

The reader will note that there were numerous symposia, which gave an adequate chance for discussion and questioning.

Convention Papers . . . Safety

The paper which begins on this page, as well as the two which follow it, were presented before the Paper and Pulp Section at the Annual Safety Congress of the National Safety Council which met in Chicago, October 3-5, 1944. These papers are published in full. A report of the Congress appears elsewhere in this issue.

Effectiveness in Loss Prevention

EARLE N. LASHMET, Vice-President
Liberty Mutual Insurance Company

It would be very presumptuous on my part to attempt to tell you gentlemen how to properly run a paper mill. You are all men with technical training and practical experience. During your lifetime in the work, you have learned the efficient way of doing things. You know from this experience that accidents to employees generally result in damage to property, shutting down of operations, inefficient replacements, and spoiling of materials, all of which can be classified as waste. But do you recognize these things to a degree that you become proud of yourselves as important people doing important work in preventing accidents? Let me tell you why I chose accident prevention work as my career—why I went to school to specialize in accident prevention.

In certain types of industry, such as rail and air transportation, mining and other such industries, accident prevention is not a side-line to the main industry. Corporations which engage in the business of transporting people must do it safely or the business will fail. Firms which engage in mining must do it safely or their property and their assets will be completely wrecked.

I received first-hand knowledge of this in the coal fields of southern Illinois. As a young man I saw that the biggest man in the mining community was the mining engineer in charge of accident prevention. His word was law to the mine managers. His presence and his work were recognized as all important to the conduct of the business. When I observed this, I wanted to be a person with authority and so I chose my career.

When I moved into the general field of accident prevention, I found safety to be incidental to the main job of producing a product. It has been a long and difficult task to get management to recognize that accident prevention work is not incidental to the main job but is a part of the main job if they wish to maintain assets and profits. Management today is well educated and this work of loss prevention is being done well.

1—*A Sales Job.* Our present problem as safety career men is to get individuals to recognize that loss of time, of limb and of life are not things that have to happen. If we fail in this respect, it is not the fault of management nor the fault of inherent hazards. It is primarily that we fail as salesmen. So let us look at our work as a sales job and see how we should go about selling this product of accident prevention.

2—*Know Your Product.* A good salesman must first know his product. He must know from analysis what kinds of accidents are happening and where they are most likely to occur. In fact, he must become an expert on accident facts and statistics. The National Safety Council does a splendid job in furnishing you with the text books and information from which to learn. This is our product and we must know all the facts before we attempt to sell it.

3—*Objections Are Natural.* A good salesman then exposes himself to his prospects. He will learn that it is a mistake to judge people by their outward appearance. He will learn that he must develop a change of pace in going about his work or he will soon become boring to himself and his prospects. Everyone knows what goes on in a prospect's mind when we try to sell him away from the way he is doing things. First he says, "I won't change. I've been doing it this way for a long time." Second, he makes up his mind how to handle you and how to get you away from him. Third, this individual dreads the pressure you are going to put on him to change. And finally, he considers you a stranger to his type of work and things, "What do you know about it?"

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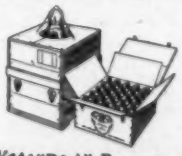

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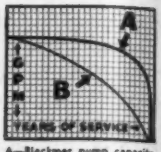

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be effective, we must recognize these objections as purely human objections that come into every person's mind. It does not matter whether you are selling an idea, a work method or a tangible product, you must deal with these objections in a low-pressure way.

4—*Action by Dealing in Future.* The individual has made up his mind that he will not change, but we as salesmen know that everyone likes to talk about what he is going to do in the future. Many people to whom I have tried to sell were pleased to talk to me about what they would buy some day when I knew they would not have given me five minutes on buying today. We approach our people on the basis of future changes and we sell the idea that some day they ought to change their methods or procedures. Before long, if they are sold, they will bring the problem into the present.

5—*Use of Disturbing Ideas.* The use of disturbing ideas is one of the best sales tools in our effectiveness kit. By this I mean the use of language in such a way that the words linger after we have gone. Such a disturbing idea is one where we say to an individual that some day someone will get a lot of credit for finding a better and safer way to do this job. That is a disturbing idea that will linger on as all of us dislike to have our associates find a better way to do our work. It is a disturbing idea that will keep the individual thinking about the problem.

6—*Allow Others to Find Solution.* Let the prospect get credit for making the change. I have handled people by suggesting all around but never mentioning the solution because I wanted the solution to come from them as their idea; then it would be done and become effective.

7—*Get into Our Picture.* We must get the individual identified with us as a co-worker. This you all do in your safety committee work as it is all important to your success. If a picture were made of this group, we would probably all buy it because we are in it. But how many of us have even bought a group picture where we were not in it? And so we identify the individual with us by giving him problems that are supposedly baffling us and let him work them out.

Our objectors to safe practices are never experts. Their objections are usually based on habit. Therefore, to motivate them, we must know what it is that makes people do things. Human beings react to several things.

8—*Motivation Through Affection.* First is the emotion of affection. Think of the millions of dollars that are spent each year because of this emotion. Think of the many changes in plans and personal ways of living because of this motive. We must be able to use this emotion in preventing accidents. Men will change their ways because of an appeal to what it means to their families for them to come home each night without an injury. He is not a sissy who works safely for his family whereas he might think himself one to work safely for himself. The affection emotion can be used in getting people to wear goggles, use guards, etc.

9—*Action Through Fear.* I spoke of the millions of dollars spent each year for affection. What about the fellow who goes to a convention, has a wonderful time and stays a day or two too long? He takes a beautiful present home to his wife. But affection is not the motive; fear is what prompted the action. He is afraid of the consequences and spends to cover up. We must learn to use that emotion in working with people to act safely. The man who does not cherish someone else usually has great affection for himself. Facial disfigurement, crippling accidents, financial embarrassment—these are all tools of the fear emotion, which, if properly used, will get people to work safely.

10—*Effectiveness Through Ambition.* I made a talk one time and when I was all through, a young man came up to me and said, "Mr. Lashmet, that was a wonderful talk you made tonight. Now if you will just buy this set of books, you will be the best informed man in the country." I bought the books. He appealed to my ambition. Ambition is another tool in our effectiveness kit which usually works. A safe operator can and will be recognized by the management as one who can accept responsibility and direct others and he will win promotion within his organization.

11—*Pride as a Tool.* Do not think that "keeping up with the Joneses" is idle chatter because pride is a human emotion

Many factors govern the life and performance of wire cloth faces and winding wire.

One of them is the wire itself.

Well known and proved is the corrosion resistance of Monel to pulps, paper mill stocks and white waters, caustic liquors and cleaning solutions of dilute muriatic and sulfuric acids.

Of equal importance is that Monel wire faces and winding wire are combined *safely* with bronze cylinder parts under corrosive conditions generally met in stock preparation.

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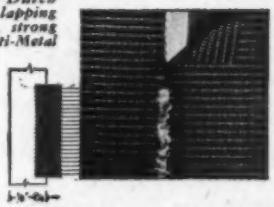
For further information on Monel wire cloth, write for your copies of *Performance and the Reasons* and Bulletin C-3, *Monel, Nickel and Inconel in Pulp and Paper Mills.*

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York 5, N. Y.

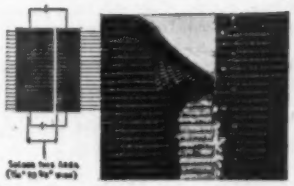
Monel

Seams for Monel faces are readily made by silver soldering or welding. This improved butt joint for corduroy and twilled Dutch weaves eliminates over-lapping and produces a smooth, strong seam. Developed by Multi-Metal Wire Cloth Co.

1 ¾" x .014" Monel strip spotwelded to under side of one end. ½" to project.



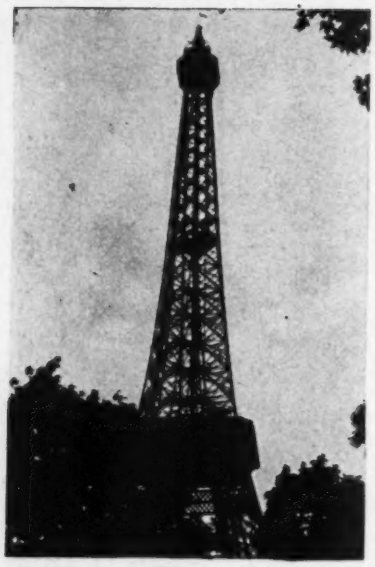
2 Bring cover around to close fitting butt joint. Solder cloth to Monel strip and over butt joint.



ESTABLISHED TYPES OF MONEL WIRE CLOTHS for PULP and PAPER MILL SERVICES		
Pulp Thickeners	*Monel Backing Screens*	*Monel Top Screens*
VACUUM FILTERS	10, 12, 14 mesh*	40, 50, 60 mesh
SAVE-ALLS	10, 12, 14 mesh*	50, 60, 70, 80 mesh (12 x 64 corduroy cloth used without backing screen)
Unbleached Stock Washers		
VACUUM FILTERS	10, 12, 14 mesh*	30, 40, 50, 60 mesh
DECKERS AND CYLINDERS	12 x 64 mesh Monel and 14 x 88 mesh Monel corduroy cloth used without backing screen	
*Alkaline Bleached Stock Washers***		
VACUUM FILTERS	10, 14 mesh*	40, 50 mesh
BOARD MACHINE CYLINDERS	10, 12, 14 mesh	30, 40, 50, 60 mesh
BEATER WASHER		40, 50, 60 mesh
Lime Sludge Filters		
VACUUM TYPE	14 x 100 mesh Monel, 24 x 110 mesh Monel, 200 twilled Dutch weave Monel and "AU-Type" extra heavy braided weave Monel filter cloth	
Water Filters		
CYLINDER AND VACUUM TYPE	12 x 64 mesh Monel, 14 x 88 mesh Monel 80 mesh twilled Monel (wire dia. 0.007") 100 mesh twilled Monel (wire dia. 0.005") 120 mesh twilled Monel (wire dia. 0.004") 120 x 140 mesh twilled Monel (wire dia. 0.004")	
CLAY AND COLOR STRAINERS	150, 200 and 325 mesh Monel	

*10 mesh recommended for increased open area and drainage—**For chlorinated, acid-bleached stock washers Type 316 nickel-chromium-molybdenum alloy steel recommended.

This classification table is offered for your guidance through the courtesy of the Multi-Metal Wire Cloth Company, N. Y. *Write us for copies.*



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Surviving the days of ruthless enemy occupation, Layne Wells and Pumps are still on the job! With the exception of some cases of sabotage or wilful enemy destruction, those Layne Wells and Pumps are still producing somewhere near 90,000,000 gallons of water daily.

The Paris wells are 3,000 feet deep, with their corrosive proof, Layne built shutter screens set in the famed green sands formation. They were installed in 1928-29 by Layne-France Company, one of Layne's many affiliated companies. The city officials of Paris, after thorough investigation, selected Layne Wells and Pumps from a field of the keenest world-wide competition. Their confidence in the equipment has been more than justified.

Today in liberated Paris, rebuilding is already under way, but little or no work will be required to keep Layne Wells and Pumps spinning merrily along and producing ample quantities of water.

Layne Well Water Systems have also made great records in other war zones; Dakar, Tunis, Casa Blanca and London. They have long lasting quality that more than amply fits them for any peace-time need.

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LAYNE

WELL WATER SYSTEMS

DEEP WELL PUMPS

that causes people to change their ways. Every foreman has some degree of pride and wants as good or better record than his brother foreman. Proud to be able to support his family as well as Jones is what Smith likes to feel. He cannot do it if he is not as careful as Jones or has more misfortunes. The use of charts and bulletins comparing the accident rates of the various departments is an appeal to pride and will motivate people into action.

12—*Appeal Through Profit.* The desire for profit is another emotion which motivates people. Loss of income through disabling accidents keeps many people and firms working safely. We must use that tool to get people to become safe workers.

These are the things which enable us to deal with management and individuals and through which we become effective in our work as safety men. I am sure there is not a management or an individual who will not react favorably to this low-pressure sales treatment.

Let me sum up what I have tried to say in behalf of effectiveness in Loss Prevention:

1. Become an expert on accident causes.
2. Learn what a salesman has to know in order to motivate people.
3. Be proud of your work as safety engineers. You are not incidental to the main job—you are a vital and important part of your firm's program.

Safety in West Coast Logging

TED KEPNER, Logging Safety Supvr. Crown-Zellerbach Corp. (Cathlamet, Wash.)

Our problem in safety in the northwest logging industry is essentially no different than safety problems in any industry. We have men and machinery to obtain production which is the same in other industries. Thus, our approach to safety in the logging industry is the same as any other employment. However, we do have certain hazards in our industry which do not appear in other employment.

MIGRATORY

Logging is migratory compared to a plant operation. In other words, the Lord put the trees out in the woods and the loggers must go out and get these logs. The machinery must be mobile and the men on the move to get production. Compare this to a plant where for the most part the machinery is in a fixed position and the men in quite stable positions of working conditions. Then again in a plant operation, the raw materials are fed in the back door, whereas the logger must go out and get his raw material where he finds it in the woods. Each logging show is a different set-up than the other, and each setting lasts only from a month to six weeks. This makes one place of employment in the woods a temporary working place. All the logger wants to do is to get the logs in that particular location and move on for more logs. Essentially the hazards of logging do not change from one setting to another, but in detail each new logging show has its problem which unless are emphasized to the logger, he is apt to overlook. This oversight causes an accident which may injure a workman.

TOPOGRAPHY

Our topography is rough compared to a plant operation. The logger must go everywhere in the woods to get logs under all topographical conditions. This gives the logger an added hazard because of rolling logs, slips and falls, which account for a great number of injuries.

WEATHER

Logging is all outside work. This increases the possible injuries because of wind and storms, but at this point it may be said that the logger takes this in his stride and watches carefully for these conditions and very few accidents happen from this source. He understands and knows these conditions and protects himself.

OUR APPROACHES TO SAFETY

1. Management

There is no question that this is the first approach to any safety problem is through management. It is not necessary to talk of this item, because, we have all been completely sold on safety from this avenue of management. In some cases, we have been oversold to the point that we do not at all times pass the responsibility on to others.

2. Machinery

As was said, for the most part our logging machinery, such as skidders, trucks, donkeys, caterpillar tractors with dozer and arches, locomotives, speeders, and power tree falling equipment, are mobile units. Management makes every effort to guard this. We guard all exposed moving parts and usually plan to make these guards so that they can be easily removed and replaced by maintenance men. We have overhead and back guards on tractors, use safety glass where glass is used, ground all electrical equipment, inspect boilers and cables, and have very complete machine shops for maintenance of this equipment to keep it in efficient and safe working condition.

3. Slipping Accidents

All loggers in the Pacific Northwest wear a high top steel-spiked soled shoe which is called a calk shoe. This type of shoe prevents many slipping and falling accidents from logs and rough ground. These shoes, after use, became what the logger calls slick. That is, the calks wear down and when they do, he is headed for a slip or fall. Our management provides commissaries so that the logger may purchase new shoes easily, at practically cost. Further, we provide a free calking service where the men can get a hammer, shoe stand, calks, etc., and replace lost or worn calks in their shoes.

4. Hard Hats

The limb hazard to logger and particularly the timber faller is a great hazard. Every effort has been made to induce these men to wear hard hats. So far, the progress has been very slow. The logger has not yet been convinced of this hazard because of the fact that many loggers have worked in the woods for 20 years and never been struck on the head by a falling object.

Incidentally, 20 years is just about the

Heavy tonnage job...

Ever since the days when car records were press-transferred on yellow tissue, railroad canary has been the popular choice of railroad men because of its visibility and utility.

Auramine 00 has consistently been used in the production of these volume papers. Valued because of its non-rubbing property, its economy, and because it can be used for both beater coloring and calendar staining, Auramine 00 has few competitors.

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span of time that he may be immune from the limb hazard according to statistics. We have issued the hats free of charge and made every inducement possible, and are looking forward to the time when all loggers will wear hard hats. This will come when the manufacturers make a few improvements and changes to fit our need in the logging industry.

5. New Equipment and Devices

Logging methods, like any other industry, are continually making changes in equipment and methods of logging. As these come into use, they are checked carefully for safety provisions. Recently, we have introduced the electric power saw for felling of timber. These have been in operation for over two years and so far have had no unusual accidents with this equipment because it was carefully checked and the men trained to operate them.

6. Inspection of Equipment

Equipment is periodically inspected, such as railroad equipment, blocks, and cables, boiler inspections and many other items. The cause of accidents from faulty equipment as in any other industry, is very small. And you also realize that logging equipment must be sturdy and well constructed, and, in fact, all equipment and cables for the most part have a safety factor of 10 to 1.

EDUCATION

The next step in our safety program is, of course, education, which to all of us is the most interesting.

1. Supervision

This of course, is the most important item in any safety program, but safety in logging must also reach each man to the greatest extent because our crews are spread out over a large area. It is not uncommon with a crew of 250 men to have them spread out over 30 miles from the boom to the last tail tree in the woods. Thus, our safety supervision must be decentralized to reach every man. Each man must work for his own safety as well as his fellow man. We work our safety educational program not only to reach the foreman, but also adapt it to reach the workman.

2. First Aid Training

This to me has been the greatest item of safety training to the logger of any approach that we have made. In 25 years, I have seen First Aid training do a job of safety for the logger that is outstanding.

Prior to Pearl Harbor, we had more First Aid trained loggers than the whole of the City of London. Our particular company is fortunate in having one of the best First Aid instructors on the Pacific Coast. In his nine years of training our loggers, he has taught them practical First Aid adapted to their work. As you know, a First Aid trained workman is a safer worker because he first knows from this training what an injury is and how to treat the injury. This fact alone makes him not want to have an injury. Our files are filled with remarkable savings of human life through the efforts of the First Aid trained logger. We would not start any safety program without first having a First Aid training course.

First Aid is basic and fundamental. Some will say that might be true in logging where the men are spread out over a large area, but First Aid would not be of value in a plant close to a doctor. This flatly is not true because in these plants which have complete medical facilities, we have used First Aid training and have had remarkable results with our accident record.

3. Safety Training Courses

We have used safety training courses with our foremen which includes Safety engineering and Job Instruction training under the Training within Industry program. It is difficult to estimate the value of these training courses except to say that the men are asking for more training and that our accident record has decreased. We plan to continue these courses because the foremen say that it gives a tool of safety with which to do their job.

4. Foremen

Under our safety program, the foreman is the key man. All safety pivots from his activity and the safety men supplement or give service to his activity.

5. Safety Meetings

These are used as a formal means of further reaching the workman.

TREND IN LOGGING SAFETY MOVEMENT

During the past year particularly, and for the past five years, we are seeing the greatest concentration and co-operation in our safety movement in the logging in-

Are You Losing Too Many 4/5ths?

Out of every dollar paid out for the expense of Paper and Pulp Mill accidents, only 1/5th (20c) is covered by Insurance. The remaining 4/5ths (80c) comes out of YOUR pocket in INDIRECT costs.

But when you put National Safety Council Accident Prevention Service to work in your plant it will—when properly applied—cut down the Frequency and Severity of your accidents, and, of course, those 4/5th losses which you have been paying for.

The Council's Safe Practices Pamphlet No. 42—"Organizing a Complete Industrial Safety Program" tells exactly what to do and how to do it.

A complimentary copy is available for you—just write on your company letterhead to Paper & Pulp Section—

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NATIONAL SAFETY COUNCIL, Inc.

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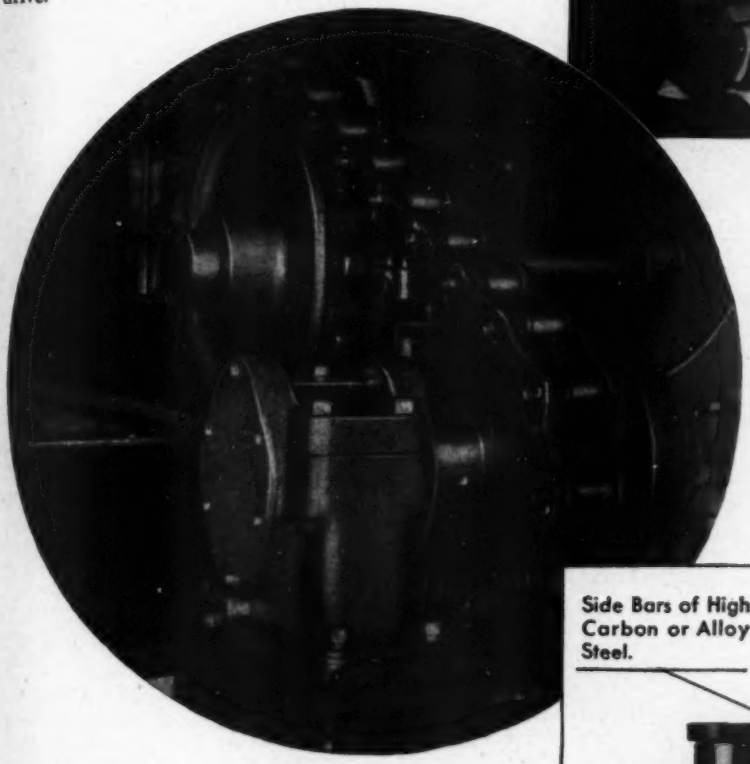
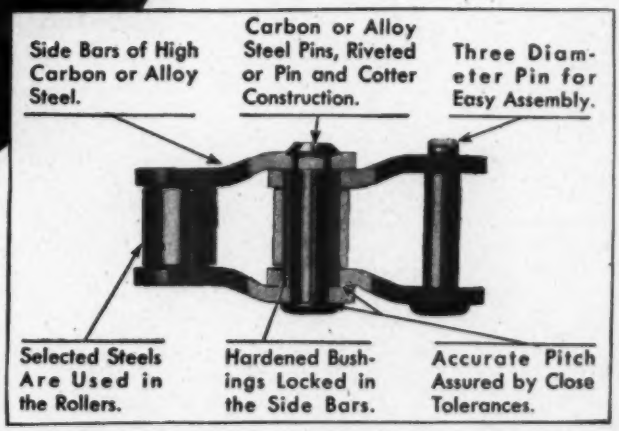
WE CALL THAT OUR PLEASURE DRIVE

❶ "I STILL HAVE THE JITTERS when I think of that old drive we had," this mill operator told me. "Always breaking down right in the middle of a big rush job . . . never really operating right,' it was the headache of the whole mill. We never got real production till we decided to put in that Chabelco chain belt drive."



❷ "DID IT EVER FILL THE BILL! Why, that chain belt runs so smoothly the boys call it the 'pleasure drive.' And it not only operates better, but it has lasted far longer. Let me tell you, with the conditions under which it operates . . . dusty, dirty, never getting the right attention or lubrication . . . it's a miracle it runs at all. How come that Chabelco chain drive is so good?"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❸ "LOOK AT THIS DIAGRAM," I told him. "Look at that three-diameter pin with its milled ends that prevent it from turning in the side bars. Note the offset side bar construction, the high finished, case hardened bushings locked in the side bars and the other quality Rex features. It's built tough for tough service. That Rex design means far longer life and greater service."

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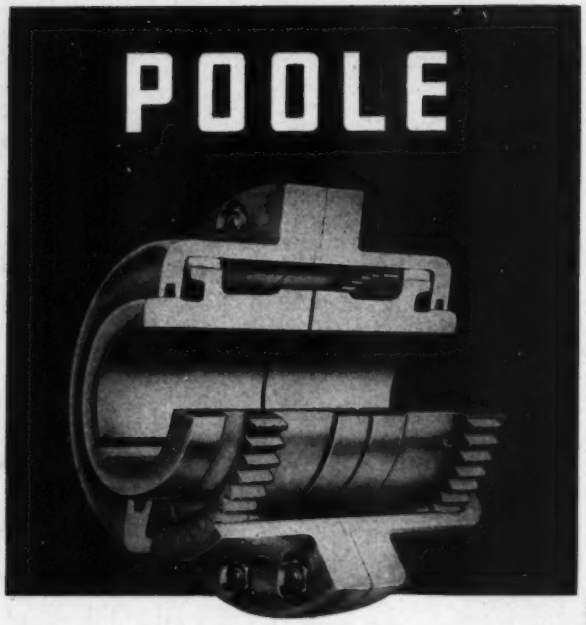

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dustry in the Pacific Northwest. All the large companies have safety programs operating, and many of the small operations are very active.

Basically, there is nothing new in safety, but the need is application to the industry. Thus, it takes management through their safety men to apply the basic rules, of safety to the particular job. Where a safety man used to work alone on a problem in logging operation, he does not have to do so today because of the added interest of other organizations who are also working on his safety problems.

The Oregon Accident Commission has a very complete program for the logging industry which includes posters, codes, safety classes, inspections and many other educational facilities for our industry, and each day, we are making progress through their co-operation. The Oregon Safety Association also has a complete service organization for our use. In our organizations for safety, they trade much valuable information. We are also in close contact with British Columbia and their program. The National Safety Council is also cooperating to give our industry valuable safety information in the way of posters, safe practice pamphlets and pictures. In other words, in the safety movement in logging, we have a great fund of safety to draw from and the job of the logging safety engineer is to apply it to his operation.

SAFETY DIRECTIVE

The War Labor Board has handed down a Safety Directive to the lumbering and logging industry of the Pacific Northwest which at present covers 250 companies. A special committee has been appointed to work out a program from this directive. Mr. Hartwig of our company who is with us today, is chairman of that committee. This committee has had several meetings and for the most part has completed the program. To us, this approach to safety is revolutionary in that we know of no industry in the United States which has a similar program. We are all looking forward to its adoption and expect it to be the springboard for the most effective safety program in our logging industry.

I would like to point out the main provisions of the new program to you.

1. Committee selection
2. Agenda for business
3. Meetings once each month on company time
4. Inspections
5. Accident investigation
6. Educational program
7. Disputes

Safety—As I See It (Management)

HARRISON F. DUNNING

Assistant to the Vice President
Scott Paper Company

Every time I think about the general subject of safety, that reasonably old story of the new recruit in the paratroopers comes to my mind. This particular recruit didn't get the idea very fast and so the trainer schooled him most carefully before his first practice jump. "Now after you jump from the plane," he said, "you count 10 and then pull this first ripcord. If nothing happens, don't get excited. Just count 10 again and pull this second ripcord. You'll then float down to earth, and because you'll probably land at some distance from the camp, we'll follow you with a truck and be there when you land, to bring you back."

So the new recruit gets shoved out at some 4,000 feet, he counts 10 and pulls the ripcord. Nothing happens. He doesn't get excited—he just counts 10 again and pulls the second ripcord. Nothing happens. He thinks about his situation a little bit and then says to himself: "You know, I'll bet those dumb bunnies won't have that truck down there."

That story sounds a bit exaggerated, but actually when you analyze many of our industrial accidents, you come to the shocking realization that many industrial employees *do not know when they are endangering themselves or their fellow workers.* It just doesn't seem to click, for some reason. And yet, I think you will all agree with me, that particularly in the pulp and paper field, it is impossible to prevent any large percentage of accidents with mechanical guards.

We have heard so many times that you

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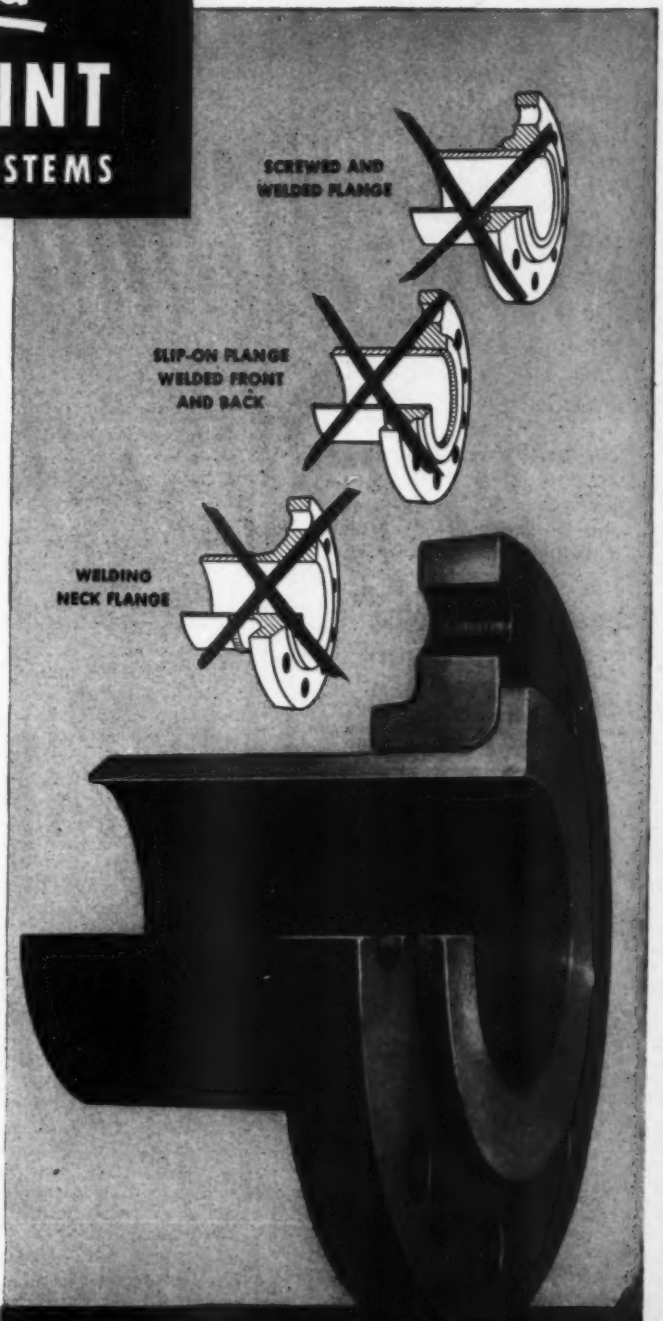
For making connections to boilers, pumps, valves and other flanged outlets (and where piping must be frequently cleaned or inspected for corrosion), Midwest Lap-Joint Stub Ends have a tremendous advantage over flanges that are welded to the pipe (see drawings at right above). The swivel flange on the Stub End makes it unnecessary to accurately line up the bolt holes before welding; "setting up" is simple and quick because no special clamps or jigs are required to hold the face of the flange absolutely perpendicular to the axis of the pipe. The result is a real saving in time and cost of welding.

Another important economy is in erection. Field organizations report a saving of 25% in erection time for making up a joint using Midwest Lap-Joint Stub Ends in comparison with flanges rigidly fixed to the pipe; this saving is even greater when the flanges are on bends.

See Bulletin WF-41 for complete data regarding Midwest Lap-Joint Stub Ends . . . and the many other Midwest Welding Fittings that simplify and save on welded piping.



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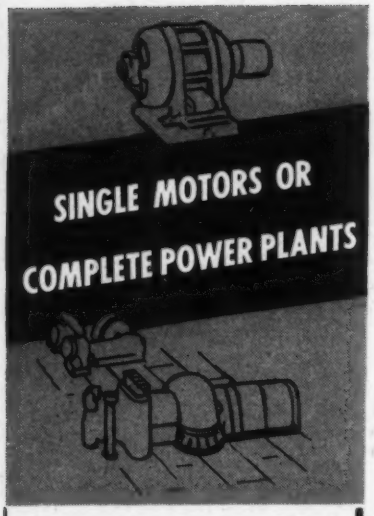

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can't have safety without top management's complete and enthusiastic support. We've heard, too, that you can't have safety without the front-line supervisors' support. In fact, at some time or another, all classes of supervision and personnel have been singled out by someone and named as the group you have got to get to realize success.

I believe that you can't have a successful safety record unless you have the active, enthusiastic support of every group—top management, department heads, front line foremen and supervisors, and the people who do the work themselves—and I think you have to have such support in equal amounts from each and every group. Top management alone can't do it, any more than supervision alone or the working people alone can do it. I feel that you, too, believe the successful safety program and record requires the effort and support of all groups—but the big question is: How to get it?

I am reminded of the young lady who had to have a serious operation performed. She was greatly disturbed about it, and kept seeking reassurances from her doctor. Finally the doctor, having done everything he could to reassure his patient that everything would be all right, and with her still not convinced, said, "Look, madam, only 14% of the operations of this type are fatal. I am positive that you have nothing to fear because I have already lost my 14% this year."

I think many of us in safety work during this war period have taken a similar fatalistic viewpoint on our safety records. The pulp and paper frequency rate has been about 30 for the past five years—and many of you have probably rejoiced that you have been able to hold your own against high turnover, a lower grade of new help, women on men's jobs, integration of the physically-handicapped, and countless other factors which would tend to make your frequency go up.

But that frequency rate of about 30 indicates that today Safety is a static thing—and a static thing is a dangerous thing, because, if we are content to let our safety record remain static, we will someday awaken to the realization that it actually is in a tail-spin which we can not easily stop. So I maintain that we should change our attitude, we should reject the "hold the line" philosophy, and gear up immediately to make our safety movement a great, a living, a dynamic program which will begin now to move forward to new records and achievements.

And how can this be done? By actually developing the support of all the groups involved—top management, department heads, foremen and the *people who do the work*. I know that is more easily said than done, but it is remarkably easily done too, if you use the right formula. And it's an easy formula to use. Here it is:

First: To encompass everybody, get away from the typical "engineer's" approach to this problem, and adopt a complete "sales" approach. This can be done by the development and adoption of an out and out sales technique by your present safety engineers. In our company we even went one step further, and appointed one of our very best salesmen to the position of Safety Engineer, to insure the adoption of a sales approach. We feel the man who makes the safety sale must be human, understanding and just as eager and sincere when preaching the gospel of safety as he is when extolling the quality and value of our products to a buyer. That kind of man gets the order—and the safety record from all classes of personnel, and gets it quickly.

Second: Support your safety program with every bit of advertising, merchandising and sales promotion know-how that you have in your business, and which you normally reserve for selling your product. Make your safety program interesting, novel, alive—keep introducing new angles, just as you keep your sales appeals and advertisements fresh, interesting and tuned to the times.

Your result will be this: you will so thoroughly merchandise your safety program—visually and verbally—that very shortly every single person in your organization will have a greater safety-consciousness than ever before—and you will have a real, living, dynamic force at work which will break your safety program out into the open as one of the active movements in your business.

This may sound awfully good to you—but pretty hopeful and theoretical. Yet we know it works because we tried it. Let me tell you the results:

In 1941, the year of Pearl Harbor, we had a frequency of 37.2. In 1942, with new and inexperienced help coming in, our frequency rate went up to 43.6. But during the latter part of 1942 we installed the plan I have just told you about. In 1943, our frequency dropped to 6.4, and this year to date, it is only 4.7. And in the acute labor area in which we work, we've had everything that anyone else has had in the way of turnover, physically-handicapped, women on men's jobs, etc. We have had the works.

I'd like to leave one further thought with you today, and that is this.

The Hour for Safety

The Hour for Safety has Struck! Every business, every movement, every activity at some time during its span of life has a period when all the attendant circumstances make possible a tremendous forward surge. During this war period, for example, aviation has made strides way beyond anything that would have been possible had these been peaceful years. So has the field of medicine. Going back into history, the first oil well was drilled in 1859 at Titusville, Pa., in an effort to get illuminating oil to replace candles, beeswax and whale oil. New, small uses for petroleum were found in subsequent years, but not until the development of the automobile did the hour for oil strike—and it's been striking ever since with oil heating, Diesel engines and the like.

So every movement has its hour, and I say the hour has now struck for safety for the following reasons:

First: Some 12 million men in our country have been educated to new high standards of personal fitness through their Army and Navy physical examinations,

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through their anti-disease shots, and their physical training activities.

Second: Many of these same 12 million men have seen their buddies horribly wounded—have learned first hand what the loss of an arm or a leg or an eye means to a man.

Third: The mothers, fathers, wives, sisters and brothers of these men have lived for months and years in apprehension and fear of injury and death to their loved ones. Life and the bodily members which make possible a full rather than a partial life, have become more precious to everyone.

Fourth: Industry in general has been forced to accept the physically-handicapped worker on an equal basis with the non-handicapped, and these fine and courageous men and women have, during the war period, stood as a constant and daily reminder to all their fellow workers of the advantages of accident-free work.

As a consequence we have almost our entire working population in possession of a new awareness of the importance of life and limb, prepared to guard more jealously than ever before the heritage of full physical equipment, and therefore, ready and willing to play an even larger part in making an outstanding safety record.

But to secure the full fruits of this situation, leadership and guidance must be given our industrial workers; they must be presented with a program that is dynamic, forward looking, going on to better records, not static and content to "hold the line" or match last year's record.

So, "Safety As I See It," today, faces a golden opportunity, and the hour has struck in which to lay the groundwork which will make past performance look like a mere skirmish in the field of accident prevention.

The time is *now*. The place is *your company*. The job is *yours*. It can be done if you have the will to do it.

Convention Papers . . . Abridged

This is the fifth installment of abridgments of papers presented at the annual meeting of The American Pulp and Paper Mill Superintendents Association, held in Chicago, May 24-26, 1944. More of these abridgments will appear in future issues.

Observations on Dryer Drainage Systems

PAUL L. ULRICH, Chief Engineer
Armstrong Machine Works

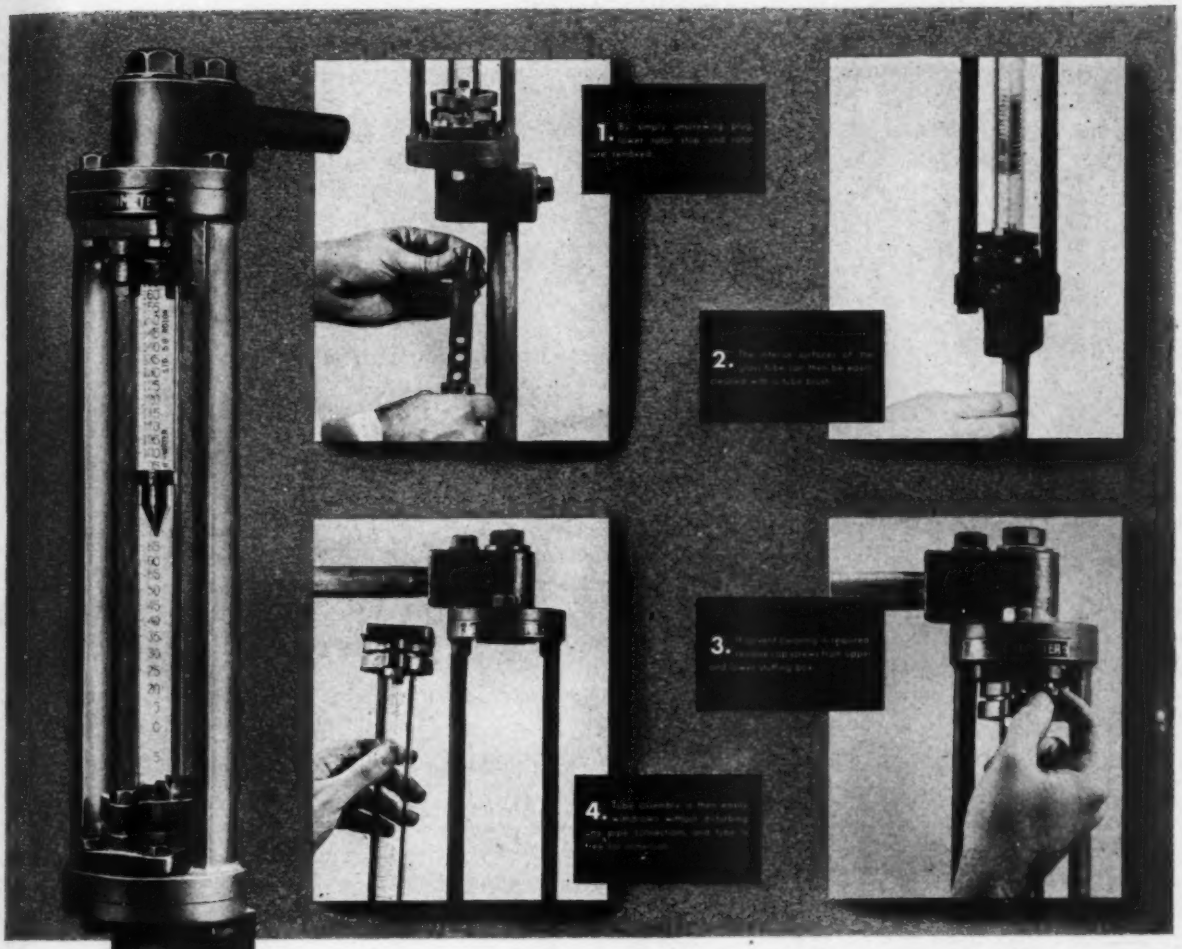
Assuming that a machine is not drying the maximum quantity of paper of which it should be capable, a study should be undertaken to determine just where the machine is at fault. The trouble may be in the press section, the vapor absorption or ventilating system or in the stock preparation system. It may be that the felts or the draw are at fault. However, if these factors are found satisfactory, the drying section should be investigated. To make such an investigation some yardstick for drying performance is helpful. Such a yardstick is the maximum dryer temperature possible with the steam pressure being used.

Two methods may be employed to determine this temperature yardstick, and in our opinion both should be used, one as a check against the other. One method consists of taking the shell temperature with a good reliable surface pyrometer and the other consists of filing a spot on the drip line at a point near the steam joint and obtaining the temperature of the condensate leaving the dryer with a point pyrometer. This should be checked against the temperature of the steam inlet to the dryer. These temperatures should be taken with the machine in motion and with paper passing over the dryers.

It should be pointed out that the shell temperatures will not be the same as those taken on the drip line. One might assume that the shell temperature will be lower than the drip line temperature as the heat supplied the sheet must travel through the iron of the shell. However, friction enters into the reading and as a result the shell temperature will probably be higher than the drip line readings. Variation in friction between dryers will have some effect on the surface readings and judgment must be used when comparing results. It will generally be found that the first wet end dryers are operating at lower temperature than the balance of the machine. However, if marked variations in dryer temperature in the main drying section are observed, while this section is operating at constant pressure, faulty drainage is indicated. The highest dryer temperature found may be used as a yardstick for performance for the main drying section of the machine and the amount of deviation of other dryers from this temperature is a comparative measure of drainage efficiency.

If it is found that dryer drainage does not provide maximum temperature for all the dryers, the entire drainage system should be carefully studied with a view to increasing its efficiency to the extent that maximum results are being obtained from all dryers on the machine.

This brings us to the question of what constitutes a good drainage system for any given paper machine. Very briefly, a satisfactory drainage system is one which provides the maximum temperature for all the dryers on the machine and at the same time does not waste steam or upset the heat balance of the mill in any way. The system should permit any desired variation in steam pressure on any section or on the entire machine without adjustment of any part other than the steam control valve. In other words, the drainage system should be completely automatic and quickly responsive to pressure changes. Another consideration, of course, is cost, including installation and maintenance.



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Inasmuch as maximum dryer temperature is one of the prime requisites for any drainage system, we believe it fitting to examine in some detail the mechanics of attaining such temperatures.

The drainage of all steam heated equipment may be divided into two general types —those in which condensate flows by gravity to a low point from which it is discharged and those in which condensate must be raised through a syphon pipe to the point of discharge. The drainage of paper dryers falls in the latter group.

In all syphon drained dryers, the problem of removing air and condensate is present. From tests which we have made, we are of the opinion that the presence of condensate only in the dryer is not of particular objection except that it requires additional power for the dryer drive. However, as a result of the presence of condensate in a syphon drained unit, the air concentration may be greatly increased and air is a serious offender as far as maximum dryer temperature is concerned.

To illustrate how excessive condensate can increase the accumulation of air in a dryer, assume that the differential in pressure over the syphon pipe is not quite sufficient to lift the condensate from the inlet end of the pipe to the horizontal level at the steam joint. If a total pressure differential of twenty-four inches of water is required for this lift, and only twenty-two inches pressure differential is available, the condensate will accumulate within the dryer until the level is two inches above the open end of the syphon pipe. With such a condition, this syphon pipe becomes water sealed with no possibility of air or non-condensible gases being discharged with the result that the dryer slowly cools as the concentration of air increases.

The majority of the paper machines in operation are equipped with stationary syphon pipes. However, some high speed machines are provided with revolving syphons which rotate with the dryers. If the steam blown through a dryer with a stationary syphon is moderate, as is the case when the dryer is equipped with a suitable trap, the water level will be kept slightly below the end of the syphon. If, however, a considerable amount of steam is blown through the dryer, as is the case with a blow through system, the water level may be kept at a slightly greater distance—say one-fourth inch—below the end of the syphon. If the end of the pipe is an inch or more from the inner surface of the dryer, the advantage of the slight lowering of the water level due to the high blow through would be of little practical value on low speed dryers.

However, if the syphon inlet is held within one-fourth inch of the dryer inner surface, then there would be considerable saving in the power to drive the machine at high speed. A very practical method of keeping the amount of water to a minimum in high speed dryers is to place the end of the syphon in a sump in the inner surface of the dryer, and have it revolve with the dryer. With this arrangement, the inlet to the syphon is below the inner surface of the dryer and the shell should be kept practically free of condensate accumulation.

It may be said that drainage is a flow from the dryer and a drainage system is a control of that flow. The rate of flow is a function of the size and shape of the discharge passage and the differential pressure over the passage. Some systems operate on the control of the differential pressure. This type of drainage is exemplified by the blow through system in which one group of dryers blows through to a lower pressure and temperature group. This type of system requires a sufficient number of dryers near the wet end to condense all the steam blown through from the initial section and the pressure carried on these wet end dryers must be sufficiently lower than that carried in the initial section to provide sufficient differential for drainage of the initial dryers. The second condensing section often discharges to the first one or two wet end dryers which may be trapped or may blow to a receiver in which cold water make-up is added to kill the flash or blow through.

The amount of differential between the sections depends upon the quantity of blow through and the condensing capacity of the group of dryers to which the blow-through is discharged. When the paper breaks the balance of pressure in the blow-through system is disturbed. Generally, a flash or separating tank is provided between sections at which point condensate is trapped off. There are many variations of this type of system. Sometimes a restriction is placed in the drip lines from the individual dryers the function of which is to cut down the amount of blow-through and thus reduce

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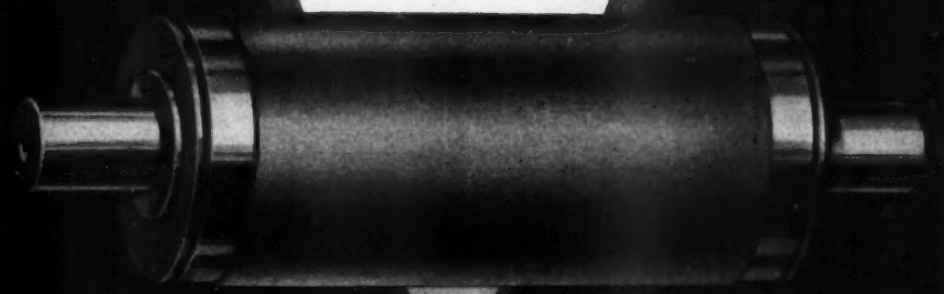

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the number of lower pressure-temperature dryers necessary to condense the blow-through.

Another type of system utilizes one trap draining the drip header for a group of dryers. In our opinion, this type of system does not result in good drainage and perhaps a brief review of the reasons for this statement is in order.

In the first place, all dryers in the group discharge to a common drip header from which condensate is drained but from which no steam is taken. Some of the dryers in the group are condensing more steam than others due to the fact that the moisture content of the sheet varies as it passes over the machine. The steam flow and, therefore, the pressure drop in the individual steam supply lines is greater for those dryers doing the most work, and as a result slightly lower pressure obtains within the dryer itself. The dryers doing the least work in the section produce the least condensate and therefore blow the most steam through the syphon pipe, with the result that the pressure within the drip header builds up to a point where the differential just balances the pressure necessary to bring the condensate up over the syphon pipe of the dryers doing the least work. As a result, there will not be sufficient differential to lift the condensate the entire distance from the inlet of the syphon to the steam joint of the harder working dryers and, therefore, the condensate accumulates in the higher condensing dryers until the inlet end of the syphon is sealed.

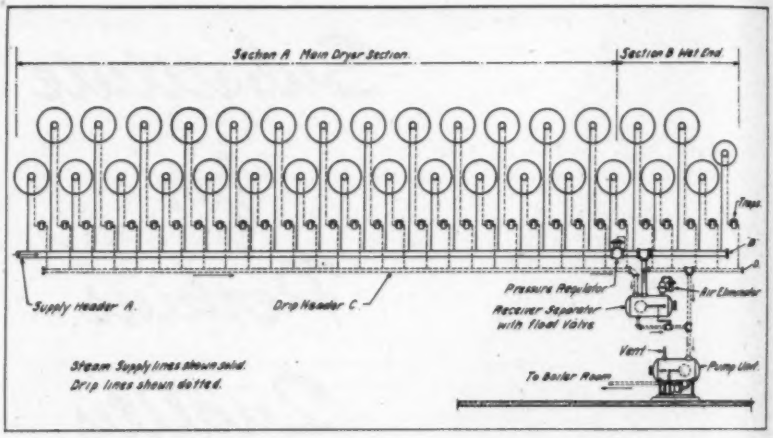

Figure 1

After this happens, any air or non-condensible gas entering the dryer with the steam is trapped within the dryer causing lowered operating temperatures. After a sufficient accumulation of air occurs in the dryer, its heat transfer and condensing rate is lowered until the pressure drop in the individual steam supply is equal to, or less than that for other dryers at which time the dryer will be purged of both condensate and air and its normal temperature will again be restored. During this process, which incidentally takes time, other dryers may be going through the same cycle. Obviously this type of drainage does not give the best results and temperatures are often erratic.

An ideal drainage system should be capable of flexibility of design so that, if desired, different groups of dryers may be operated at different temperatures. Durability and freedom from maintenance are important considerations. The system should be quickly responsive to desired pressure changes on the machine. There should be no steam waste and the first cost of the system should be reasonable.

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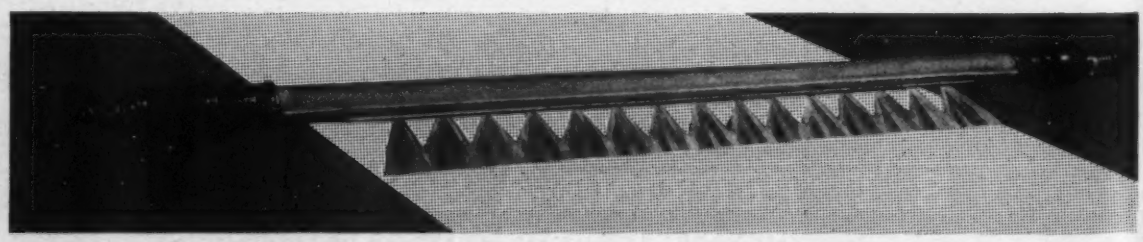

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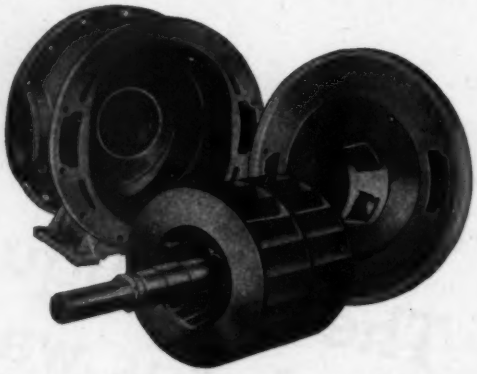

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all the above requirements is one which employs a steam trap for every dryer. The way to obtain long and satisfactory service from traps on syphon drained dryers has been found within just the last few years and the steam trap of today is an entirely different piece of equipment than its predecessor of a few years back.

With the trap installed in the drip line of each dryer, we have an automatic device which will allow the passage of condensate and air from the dryer as rapidly as it collects within the dryer. However, to accomplish this end, it is important that the trap be designed especially for this type of service.

When individual traps are used, the pressure on any dryer or group of dryers can be varied at will without any adverse effect on drainage of other dryers on the machine.

If the type of paper being manufactured does not require a group of low temperature dryers at the wet end, the entire machine may be supplied from one common steam header and all the traps can discharge into a common drip header. If the condensate is discharged to a hot well, or heater, no pump is necessary provided the pressures being used on the machine are sufficiently high to cause the condensate to flow to the hot well or heater.

If it is desired to divide the machine into two or more pressure sections, this is easily accomplished. Such a system is shown in Fig. 1. It will be noted that in this system steam enters the machine through supply header "A" and all the dryers of Section A receive steam directly from this source. Each dryer of Section A is equipped with a trap specially designed for the purpose. Condensate and air from the A Section dryers are discharged into drip header C which in turn discharges into the receiver shown. A self-compensating air eliminator is provided on top of the receiver for relieving air to atmosphere that is passed by the traps on the A Section dryers. Flash steam from Header C passes from the receiver to Header B, which supplies steam to the B Section of the machine. Each dryer of the B Section is individually trapped and these traps discharge into Header D.

The combined condensing capacity of the dryers of Section B is greater than the total amount of flash available from the trap discharge of Section A and to make up this deficiency a pressure regulating valve is installed between supply headers A and B. With a system as shown in Fig. 1, it is possible to carry a low pressure on the wet end Section B and with this arrangement the temperature of all the condensate leaving the machine will be sufficiently low that practically no heat in the form of steam is lost from the machine. With the low pressure wet end section shown, it is necessary to use a condensate pump and receiver to return the condensate to the boiler room. The pump may be dispensed with, however, if a sufficiently high pressure can be carried on Section B to force the condensate to flow to the boiler room. With this procedure, however, more flash will be liberated from the condensate and more heat carried away from the machine. Trapped systems operate just as satisfactorily under vacuum as under positive pressure as long as sufficient differential is maintained over the trap for drainage.

The exact layout of any system depends upon mill conditions and the heat balance, therefore each installation should receive careful consideration in order to best fit the system to the existing conditions.

The Deinking of Paper Stock

WALTER F. HOFFMAN[1]
and
SAMUEL R. OLSEN[2]

It is the purpose of this article to point out a few pertinent trends regarding the present and future use of deinked papers.

We have chosen several problems in connection with the deinking of old paper stock. These are:

1. Sorting and grading
2. Cooking and chemical aids
3. Disintegration
4. Washing
5. Screening
6. Bleaching
7. Percentage yield through system
8. Use of various types of water in washing and bleaching
9. Use of the finished product

Until a year or two ago, it is safe to say that, in general, the fine paper mill was interested in purchasing only No. 1 heavy books and magazines and white ledgers.

Today, due to the shortage of material and to a shortage of help, we receive so-

(1) Fitchburg Paper Company, (2) Champion Paper and Fibre Company.

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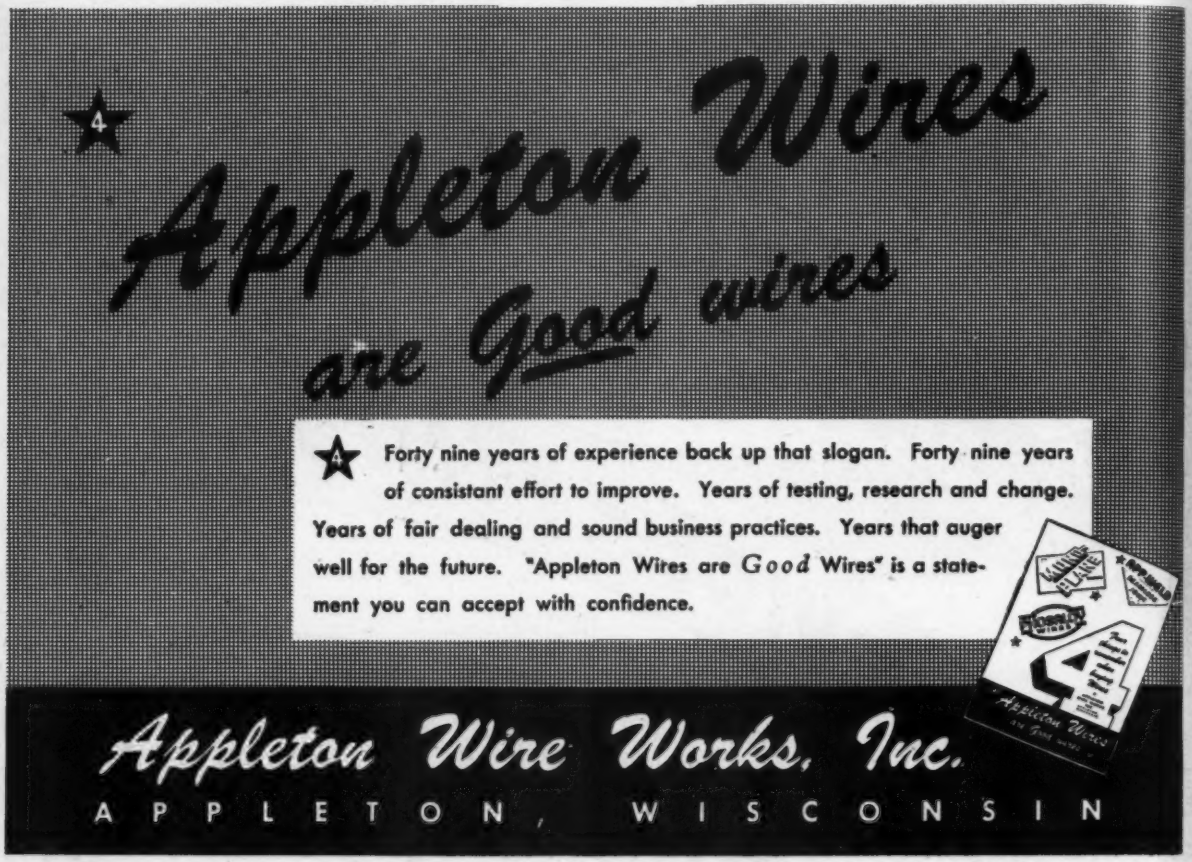
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called No. 1 books and magazines containing a large percentage of groundwood content magazines. It is practically impossible to do a good job of sorting as most mills are badly handicapped due to lack of help. Probably a survey of most sorting rooms would reveal the fact that sorting now consists primarily of the taking out of pulp magazines, newsprint, boxboard, and trash.

One other type of objectionable paper, especially when mixed, is wet strength. It is very difficult for the sorters to distinguish, and if not, kept out, causes trouble with plugged pumps, plugged trash catchers and screening trouble.

There are many types of equipment used to cook old paper stock. The paper after being shredded may be cooked in various types of tanks or digesters, or it may be pulped in a conventional beater or some special defibering equipment and then cooked in a tank or digester. Other methods of cooking consist of using a regular beater for pulping and cooking, the "Hydrapulper," the breaker beater, as well as others, together with numerous modifications. The question is often asked, "What is the best way to cook old paper stock." That depends on the starting material, the equipment for subsequent handling and the end result required. We will say, however, we do believe that defibering (by this is meant in water) the old paper by whatever means in preference to dry shredding is something worth considering, especially with the types of paper stock available today.

Of the chemicals used, caustic soda and soda ash undoubtedly are the most important. Many modifying agents or aids are used in connection with these chemicals. Various types of soaps have been recommended. We understand that some of these are being succesfully used. Some of the sodium silicates are being used; the advantages claimed for them is a milder action on groundwood, resulting in less yellowing in color.

There probably is not one ideal chemical aid to suit all conditions. The nature of the water, raw materials and equipment employed undoubtedly have considerable bearing on the type of chemical aid which would be considered ideal.

Disintegration covers both the defibering of the paper and the breaking down in particle size of the ink, varnish, lacquer or coating so that it can be removed during subsequent washing. This is usually accomplished by cooking in a beater, by cooking in a tank with an agitator or using a pump. We understand that there are successful installations using some type of a refiner after cooking or in conjunction with the cooking equipment. Due to the shortage of pulp, many mills have had to increase their production of reclaimed fiber, and some mills which normally do not use reclaimed fiber are now using it. This has had to be accomplished without being able to purchase the desired equipment, and the result has been some very ingenious arrangements and uses of any equipment available.

Probably the most common fault to be found in most washing systems is that they are overtaxed and wasteful, thus yielding a product containing too many ink residues. Such residues will not bleach, imparting to the stock a blue-gray color. Deinking of old papers is essentially a laundering process. Hence, good laundry practices should apply. Low chemical concentrations and low operating temperatures in cooking tend to give good washing results. When a shirt or overalls are laundered, soap and hot water are used; so with old papers. An alkali plus the rosin in the paper makes a rosin soap. This soap acts as the detergent, assisting in the removal of the carbon and ink in washing. If the paper carries large amounts of carbonate, hence little or no rosin, it may be desirable to add some type of emulsifying agent. On the other hand, if the stock is really well washed so that a good brightness can be obtained, the system may be too wasteful of filler and fiber. Somewhere between these two extremes there is a point where a good brightness is obtained with a maximum yield. H. A. Morrison, in an article in *The Paper Trade Journal*, describes such a system. We quote from the article: "In a deinking plant where full white book papers are manufactured, conventional couch roll decker washers are preceded by a vacuum filter. Water from the thre stage washer is passed counter current against the flow of stock back to the filter feed. All effluent water and all removed carbon goes direct to sewer from the filter. There is no other waste outlet from this deinking system.

As compared to conventional washing systems, the one described above has

PLAN YOUR PLANT DRIVE NOW!

Good organization will be needed to sell the 6th. The task of raising the huge sum required will be the most difficult ever asked of Industry. As each new military success brings us closer to Victory, the public naturally will feel that the urgency of war financing is lessened—whereas it isn't. So organize now to prevent a letdown on the home-front from causing a letdown on the fighting front. Build your plant's payroll campaign around this fighting 8-Point Plan. You don't have to wait for the official Drive to start—swing into action NOW!

1 **BOND COMMITTEE**—Appoint a 6th War Loan Bond Committee from labor, management and each representative group of the firm.

2 **TEAM CAPTAINS**—Select a team captain, for each 10 workers, from men and women on the payroll—but not in a supervisory capacity. Returned veterans make most effective captains.

3 **QUOTA**—Set a quota for each department and each employee.

4 **MEETING OF CAPTAINS**—Give a powerful presentation of the importance of the work assigned to them. Instruct them in sales procedure. Have them carefully study the Treasury Booklet, *Getting the Order.*

5 **ASSIGNMENTS**—Assign responsibilities for:

(a) *Music, speeches and announcements of the opening rally.*
(b) *Pre-drive letter to employees from management and labor.*
(c) *Competitive progress boards.*
(d) *Meeting schedules, etc.*

6 **CARD FOR EACH WORKER**—Dignify each personal approach with a pledge, order, or authorization card made out in the name of each worker. Provide for a cash purchase or installment pledge. Instruct each captain to put a pencil notation on the card to indicate the subscription he expects to solicit from each worker.

7 **RESOLICITATION**—People don't mind being asked to buy more than once. Resolicit each employee toward the end of the drive in a fast mop-up campaign. Call upon your State Payroll Chairman; he's ready with a fully detailed plan—NOW!

8 **ADVERTISE THE DRIVE**—Use all possible space in the regular media you employ to tell the War Bond story.

The Treasury Department acknowledges with appreciation the publication of this message by

THE PAPER INDUSTRY AND PAPER WORLD

This is an official U. S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council

Wolmanized troughs and trestles give conveyors dependable support

WOLMANIZED *Douglas Fir* LUMBER

A mill in Wisconsin has used over a million feet of Wolmanized* Douglas fir since 1935; a Washington mill has used almost as much in the same period. Both have recently ordered more. Why? Because Wolmanized fir has the service-proved ability to *resist decay* in pulp and paper mill structures.

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By inventing the cotton gin to pick the seeds from cotton, Eli Whitney added incalculably to the wealth of a mighty nation. Yankee ingenuity again. Call it research if you like. Lindsay desires by sincere effort to contribute materially to the improvement of Fourdrinier wire cloth and of the paper that is made from it.

THE LINDSAY WIRE WEAVING COMPANY
Serving the Paper Industry Since 1903
14001-14299 ASPINWALL AVE., CLEVELAND 10, OHIO

dropped shrinkage down to 10%, as against the previous 25%."

While we are on the subject of washing, let us briefly touch on the water used in the process. If we are to follow out our laundering idea, we must assume that soft water will do the best job of washing. In general this is true. However, mills located in hard water areas might find it difficult to justify the cost of softening water for washing alone. The water normally used for washing may be one of three kinds, or even mixtures; fresh water, water from paper machine savealls, or water from the thickeners of bleach washers. Some superintendents may object to the use of water containing bleach residues or alum, but repeated tests in a mill with water hardness (20 grain calcium and magnesium salts), have shown no real difference in the efficiency of washing between the three kinds of water. In fact, the water from the bleach washing operation seems to be a little the better. Can it be that the fresh water is already so hard that more calcium residues, or even alum, will do no harm.

In contrast to this condition in a soft water area it was found that machine white water was not satisfactory for dilution water on the brown stock washers.

Every old paper system has some type of screening; some good, some bad. It has been the experience of the writer that though screens are a necessary part of any old paper system, it is not the place to really clean up the product. If the stock is dirty, the chances are that the cooking and disintegration has not been complete. We do not want to minimize the value of good screening, but don't expect your screens to do a good job if the cooking and disintegration is sketchy. Vortraps have been recommended ahead of the screens and may be a valuable piece of equipment.

Because of the higher and higher groundwood contents of our waste papers, the bleach consumption has materially increased. By bleaching at 120 Fahr., it is possible to attain a reasonable brightness in spite of the groundwood content, but it is costly. Since groundwood is now being successfully bleach consumption has materially increased. convertors may be able to make use of this new method. One thing is certain, convertors of waste papers will continue to be harassed with groundwood papers as never before. We may as well face the situation and plan accordingly.

More thorough and efficient sorting seems impractical because of the widespread use of groundwood. Then too, there is a trend in the industry to use very fine groundwood for special papers, which is sure to find its way into our systems.

During the past year, we have all seen deinked stock used in many grades of paper formerly made from all virgin chemical pulps. In most cases the results have been quite gratifying.

There are two limiting factors; however, in the use of old papers; dirt and low brightness.

Dirt may be almost anything, but principally undissolved ink platelets, undisintegrated groundwood or kraft, rubber and undispersed rotogravure printing.

Again it should be emphasized that granting we have reasonable sorting, these difficulties must be taken care of during cooking and disintegration.

Of brightness, let us say that we leave it to the technical men to develop ways and means of increasing the brightness of our product.

Old papers can be produced economically, clean and of a good brightness, suitable for continuous postwar use in a great many grades of papers.

Machine Coating and Its Application to Board

J. R. SIMPSON
The Champion Paper and Fiber Co.

Machine coating is the application of a coating mix of fairly heavy solids consisting chiefly of clay or other pigments plus an adhesive applied to the sheet while still in the process of manufacture.

This type of coating was started approximately ten years ago; however, prior to that time several mills were using the surface filling or semi-coat idea simply to correct the two-sidedness of a fourdrinier sheet. In semicoating the object was to fill the surface pores with a coating composition but leaving the sheet in a substantially uncoated condition. In other words, the surface of the paper was predominantly fibrous with little or no noticeable improvement in the printability of the sheet.

The later development, namely, "Machine Coating," was the application of heavier layers of coating over practically the entire

SAVE NOW...fight inflation...

..and these are things worth saving for!

SAVE FOR CHILDREN! It costs money to have a child, to raise a child. But where's the father or mother who would tell you it isn't worth every penny it costs and more? Save now... while the money's coming in....save to have and enjoy your children while you're young!

SAVE FOR COLLEGE! If you went to college yourself, you want your children to go, too. If you didn't—that's a double reason you want them to have the good life you missed. Start your college fund now—while you're earning good money. It will come in handy.

SAVE FOR A HOME! A house of your own, a garden to dig in, room-to-grow for the children—every man and his wife want that. Houses are high-priced, hard to get, now. But there'll be a lot of home building after the war. Save for *your* house now.

SAVE FOR A TRIP! Today's no time to travel. But after the war—aren't you rarin' to go? To the ocean or the mountains, to Yellowstone or the Smokies, to Mexico or the new Alaska highway. Sensible saving today can finance glorious spending then.

SAVE TO RETIRE! Sooner than you think, the day will come when a little shack in Florida or a place in the country looks better to you than an active life in town. Social security is good—but it won't pay for all you want unless you supplement it.

SAVE FOR SAFETY! Money's easy today! But evreybody can remember that it wasn't always that way—and it may not be again. The man who has a little money laid by, helps prevent depression—is in better shape to ride out hard times if they come.

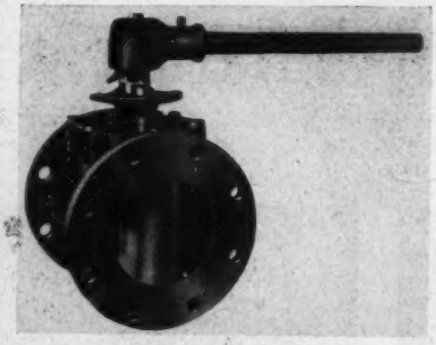
SAVE TO SAVE AMERICA! It's the money you *don't* spend that helps keep prices down. And only by keeping prices down—saving, not spending—can we head off inflation, keep America a stable, happy place for our boys. For *your* sake, for *theirs*—SAVE!

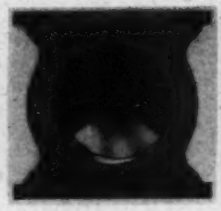
4 THINGS TO DO to keep prices down and help avoid another depression

1. Buy only what you really need.
2. When you buy, pay no more than ceiling prices. Pay your ration points in full.
3. Keep your *own* prices down. Don't take advantage of war conditions to ask for more—for your labor, your services, or the goods you sell.
4. *Save.* Buy and hold all the War Bonds you can afford—to help pay for the war and insure your future. Keep up your insurance.

HELP US KEEP PRICES DOWN

A United States War Message prepared by the War Advertising Council; approved by the Office of War Information; and contributed by this magazine in cooperation with the Magazine Publishers of America.





Valve closed.

Valve partly opened. Note clearance between plug and seat.

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EASY OPERATING—The exclusive eccentric principle eliminates contact between the plug and seat as soon as the plug is rotated. No possibility of seizing or binding. An 18" valve requires only a 30" lever.

CLEAN—No bonnet cavity in this valve, therefore, no place for dirt to form.

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surface, greatly enhancing the printing qualities by producing a more uniform surface of superior ink receptivity. Thus, machine coating got its start and was developed primarily to fill the need for a sheet coating less yet having some of the characteristics of a fully coated sheet, especially with reference to color and printability.

Since then many machine coated grades have been developed and many publications are being printed on this type of paper, some publishers switching from the ordinary grades of supercalendered book to machine coat while others accepted it as a substitute for the regular coated product.

While the first machine coating process was installed some ten years ago on a fourdrinier machine, it wasn't until about seven years later that any attempt was made to commercially produce a machine coated board.

Since then several successful installations have been made on board machines in various parts of the world; however, I think it is safe to say that the application of machine coating to board is still going through a similar phase of development that the fine paper manufacturers went through over ten years ago.

One reason why machine coating wasn't applied to board grades earlier was the problem of producing a suitable surface for coating. As you know, the surface of board usually has considerable felt impressions and of course the formation of board seldom approaches that of a fourdrinier sheet, therefore, with the application of medium weights of coating as applied by most machine coating processes, it is a problem to cover up these surface defects.

What benefits are to be derived from the application of machine coating to the surface of a board sheet?

The answer is, if better color and better printing are desired, machine coating will produce both. There are of course other minor benefits such as better finish, a saving in ink and the general appearance of the sheet is greatly enhanced; however, color and printability are the two main benefits derived from machine coating.

The degree of improvement in color depends on two definite factors, namely, the brightness of the pigment used, and the brightness of the surface to which the coating is applied.

Assuming that a coating formula comprising of an adhesive plus coating clay is used, a pick up in brightness of between five and fifteen points might be expected on the G. E. Reflection Meter.

The duller or darker the surface before coating the greater will be the contrast in brightness between uncoated and coated. The most attractive sheets are usually produced by having the color of the base stock as close as possible to that of the coating color.

Printability on the other hand is more difficult to evaluate unless you compare the before and after results.

In making a machine coated fourdrinier sheet wherein the product is sold at a stipulated price per ton, for every pound of coating added to the surface of the sheet an equal amount of fiber can be removed from the body stock. Board, on the other hand, is generally sold on the basis of a stipulated price depending on caliper and per 1000 sq. ft. of surface, Machine or any other type coatings never add to the caliper nor do they produce more square feet therefore the whole burden is laid in the lap of the board manufacturers and takes the form of an additional cost. Actually, coated board weighs more per 1000 sq. ft. of surface than the uncoated product.

The compensation to the board manufacturer producing a machine coated board lies in the fact that the sheet is vastly superior to the uncoated product and certainly should be worth the difference in the cost to the customer using the product.

Regarding speed, little or no reduction is made depending on whether the machine has been operating to its maximum drying capacity, in which case a reduction of less than five per cent might be expected.

In discussing machine coating and its application to board with a friend who has been operating a machine coating process for a few years on one of his board machines, he stated that his customers were thoroughly sold on the idea of using this better grade. He also predicted a great future for any machine coating process which would produce a sheet of board having definitely better printing qualities than the uncoated product now being offered to the trade.

In conclusion, may I add that while I am no prophet, I, too, predict a great future for machine coating. As the papermaker gains experience in producing the proper

surface prior to coating, together with improved formulae and possibly coating techniques then we can expect to see paper and board produced directly on the paper machine which surpasses in quality anything produced to date.

This is the eighth installment of abridgments of papers presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, held in New York City, February 14-17, 1944. Succeeding issues of this magazine will contain further installments.

Resins for Paper Base Laminates

N. D. HANSON[1] and PERRY WILSON[2]

Some thirty-four years ago when phenol-formaldehyde resins were first introduced, one of the earliest commercial applications was their use for laminated materials. A major portion of this work utilized paper as a base or carrier of the resin. At that time the resins were of two general types, those of the one-step and the two-step variety.

One-step resins are those which are self-sufficient in combining methylene groups or radicals. Two-step resins require added methylene groups (generally hexamethylenetetramine) to promote hardening or polymerization. In the beginning, both types were used in about equal quantities. As the laminating industry progressed, the one-step type became the most widely used, however, the two-step type retains a definite place and use in this industry.

These resins can be best described probably as "hard resins," due to their rigid, dense, homogenous structure when molded into the finished laminated form. At present, our company alone manufactures ninety different resins for the laminating industry. All of these can be used for paper impregnation but it is necessary to know the properties desired and the equipment available in order to select the proper combination of resin and paper for the job.

The *p*H of a paper may render it or a resin unsuitable for many applications. An alkaline paper, for instance, speeds up the cure of the resin. An acid *p*H is also to be avoided because within certain limits, with some resins, it may alter the cure to an extent which causes delamination or poor strength values. It is more practical to use neutral papers and obtain a desired *p*H by adjusting the resin.

As for the varnishes used, the prime factor to be considered is its storage before impregnation. The one-step varnishes change with age. Usually, this type will double in viscosity at 80 Fahr. in 8 weeks time. This increase in viscosity is due to polymer formation (larger molecules) and results in lower penetration. Storing the varnish at 40 to 50 Fahr. greatly extends its useful life and such practice is highly recommended, and is widely used.

The extent of drying and the drying tem-

(1) Development Laboratories, Bakelite Corp.
(2) Service Engineer, Bakelite Corp.

American Pioneers

The first oil well near Titusville, Pennsylvania, was drilled by Colonel Edwin L. Drake, and was sixty-nine and one-half feet deep. This was in 1851.

FIVE YEARS after the digging of the first oil well in Pennsylvania, DRAPER BROTHERS commenced operations as woolen manufacturers.

Pennsylvania pioneered in papermaking by the establishment of William Rittenhouse in 1690, as well as in oil-drilling in 1851. Dependent as we are upon oil, we are still more dependent upon paper, and papermaking will always demand the best grades of papermakers' felts—**DRAPER FELTS.**

Draper Felts For Efficiency

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Woolen Manufacturers Since 1856

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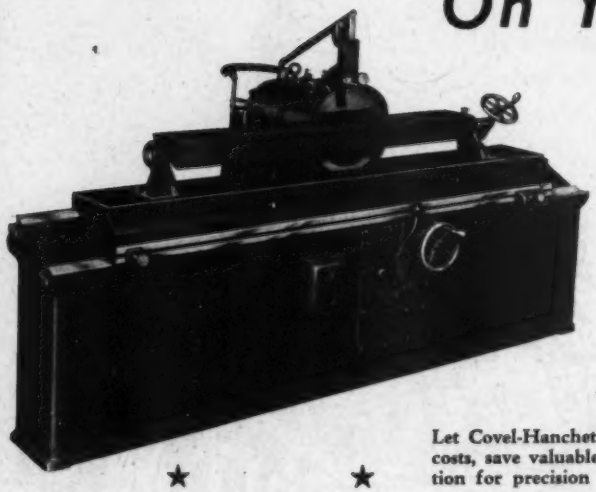
CONSERVE The CUTTING STEEL On Your Paper Knives



Actually, that narrow strip of extremely tough steel —the cutting edge of your paper knives—takes all the beating. And in bringing dull knives back to proper condition, it is this costly band of metal that is ground away. Makeshift sharpening methods or obsolete equipment help to multiply the loss—hand methods are slow and inaccurate.

The new Covel-Hanchett GK Knife Grinder speeds up knife sharpening, assures an accurately straight, even edge on any knife. Fully automatic, the GK needs no skilled operator—once the knife is positioned and the controls set, this man is freed for other work. And the extra-heavy cabinet base construction affords a solid, vibration-proof machine that will stand up under the toughest schedules.

Let Covel-Hanchett engineers show you how the GK can reduce maintenance costs, save valuable knife steel and keep those cutting blades in perfect condition for precision work at all times. Write today!

★ SAW SHARPENERS
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★ KNIFE GRINDERS
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★ ELECTRIC BRAZERS
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★ BAND WHEEL GRINDERS
★ MISCELLANEOUS SAW & KNIFE FITTING EQUIPMENT

perature used in processing resin treated papers must be carefully controlled. Each type of thermosetting phenol resin has a critical drying temperature and a critical time at which it may be exposed to that temperature. To control this, the treated paper must be checked for plasticity and volatile matter contents at regular inervals during the treating cycle.

The time required for a resin to penetrate a paper and the amount of resin absorbed is one of the most important factors in selecting a given paper or varnish for any specific application. This test can be conveniently made with a William's oil "Penetrometer" or similar instrument. Laminating varnish is substituted for oil in the test cup. The paper in question is weighed and inserted into the clamp over the cup. After inverting the cup and determining the time required for the varnish to penetrate through the sheet, the paper is taken from the cup and excess surface resin removed with a knife or spatula. This sheet is then dried for 10 minutes at 260 Fahr. and reweighed to determine the amount of resin absorbed. Various dilutions must be tested to determine the effect of added thinners. This apparatus is also helpful in noting the effect of "wild" patches or lumps of fiber in the sheet during impregnation. The "Penetrometer" in reality is a midget treating machine which makes possible a rapid classification of varnishes and papers.

The development of resins paralleled very closely the trend of industry through the years. For instance the hard resins, previously mentioned, appeared about the time the electrical industry needed high dielectrics of good strength. Laminates in the form of sheets, rods and tubes found immediate demand due to their excellent insulating properties. It is interesting to note that 70% of all these early laminates contained a paper base.

The need for a more flexible type material was ever increasing. The resin chemist in order to comply with this new requirement produced plasticized phenol varnishes, which yielded tough flexible sheets capable of being punched and sheared. These materials, however, were free from "cold flow" when fastened between metal washers or rivets. With this development came the discovery that far better electrical characteristics were obtained. Closer cooperation between the manufacturers of paper and of resin working with the laminators further produced improved mechanical properties.

With the advancement of machinery, the demand for molded shapes became more and more apparent. Expensive metal molds were needed in manufacturing most of these parts. This expense, coupled with slow curing resins, made it difficult for the laminated industry to compete with other materials economically. In coping with this situation faster curing resins were developed. These resins reduced the molding cycle to meet competition, but at the same time high standards of quality were retained.

The electric household refrigerator and chemical processing equipment are examples of how new and more rigid demands were placed on the resin and laminating industry. Both odorless and chemical-resistant laminates were needed. In due course of time both types of the materials were on the market in the form of paper-base laminates. They enjoyed a healthy rate of growth up until the war started, when the base materials were allocated to more strategic applications.

With modernistic housing fixtures and furniture, there came accelerated demands for laminating materials. Light colored phenol resins were made available for translucent laminates, which are used for signs, lighting fixtures, maps, charts, and in furniture and building interiors. In processing this material to preserve the color, it was found that the resin should never come in contact with iron pans, rods, rolls, or plates. Stainless steel, aluminum, or plastic laminates, however, proved satisfactory.

The phenolic materials, as far as color retention is concerned, are suitable for many decorative applications. Where white and pastel colors demand better color retention, the urea and melamine varnishes may be used. On most all this work, high wet strength absorbent paper with good fiber formation is essential for best results.

There are two broad classes of plastics: thermosetting materials and the thermoplastics. The thermosetting plastics polymerize or set permanently upon the application of heat and pressure; they become insoluble and infusible. The thermoplastics soften upon the application of heat and

harden upon cooling. They can be resoftened again and again upon being heated.

It is now possible to combine thermoplastic and thermosetting resins to obtain modified physical and chemical properties, although only the most absorbent papers are of value here. In some cases, the sheet may be impregnated with a thermoplastic resin and then bonded with a thermosetting resin. Calendered pigmented sheets of certain thermoplastic resins may be molded to thermosetting paper laminated core materials to produce highly decorative surface sheets. By the same token, resins are available for bonding metal to thermosetting core stock in the molding operation.

Phenol resins of either the one-step or two-step variety have been developed, which when suspended in water, may be added to the pulp in the beater to produce stocks capable of being concentrated on a paper machine or on forming molds. When a wet machine is used as the dewatering mechanism, the plies are combined on the making roll to form a resin fiber board, which is preferably dried in a loft at low temperatures to preserve the plastic flow of the resin. Preforms may be sheared or punched from the boards to accommodate the shape of molds in the production of fast curing, high-impact molded objects.

The increase in production brought forward by the present war opened up one of the most interesting of all laminated resin developments, this being the introduction of low molding pressure resins to the laminated field. These new materials can be molded in inexpensive and readily obtainable molds made of wood, plaster of Paris or cast metal molds and utilizing rubber bag technics. Thus, the high strength steel molds were not necessary.

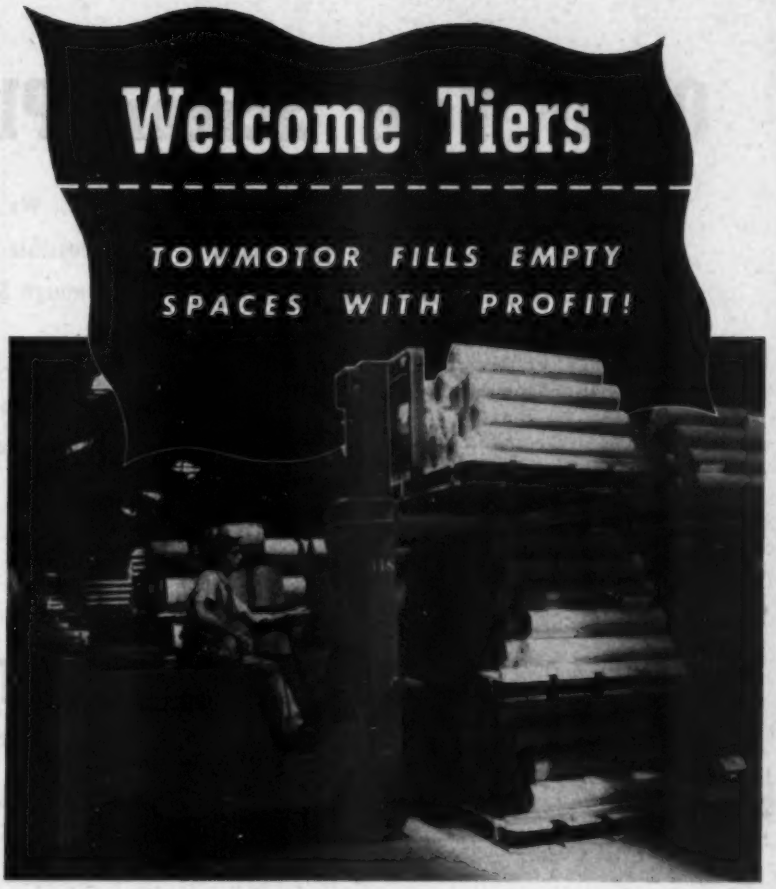
The laminated industry turns out about 70,000,000 pounds of finished stock per year. Eighty per cent of this material prior to the war used paper as a base. In terms of paper, this represents an annual consumption of 28,000,000 pounds. To the paper industry this may appear insignificant. Nevertheless, the laminated plastics industry is still in infancy, but it is definitely going to grow. That growth, however, will be accelerated by closer cooperation between the paper industry, the synthetic resin laboratories and the laminators.

Your Wastepaper Situation

H. M. FAUST, Director of Salvage Division War Production Board

At the present time wastepaper is flowing into the mills at the rate of about 560,000 tons a month. It has increased from less than 500,000 tons a month in September to this figure (a preliminary figure for January). We need approximately 667,000 tons a month if we are to meet war and essential civilian requirements. That is at the rate of 8,000,000 tons a year.

I think you would be interested in knowing of the forces that are at work to secure this wastepaper. First are the newspapers who were asked by Donald Nelson to help solve this problem much in the



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Flexible Towmotor—*the one-man-gang*—has the speed, power and maneuverability to keep materials moving without delays. Towmotor will lift loads weighing as much as 10,000 pounds, move them as fast as 880 feet a minute and build them into stacks as high as 25 feet.

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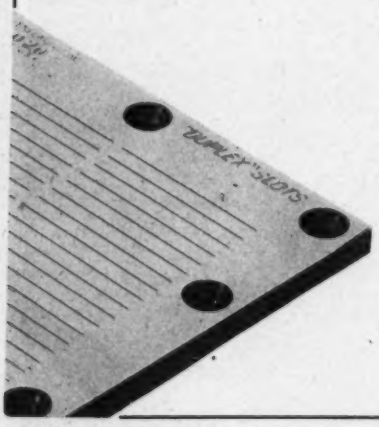
Fitchburg NEW TYPE—DUPLEX SLOT Plates have greater screening area—giving marked increase in capacity. They have features of clean screening found in no other design of plate. Little wonder we just can't make enough of them.



Fitchburg Screen Plate Co., Inc.

301 SOUTH STREET, FITCHBURG, MASSACHUSETTS

same manner as they did a year ago in the iron and steel shortage.

The magazines are also contributing very liberally of their space in order to acquaint their readers with the seriousness of the situation.

Radio, which stemmed the tide when it was going down so fast, stepped up their allocation of time to us in October. We have considerable more time coming in the weeks and months ahead from that source.

The motion picture industry is contributing very liberally. We have trailers on the newsreels in 16,000 of the first and second run motion picture houses, and some 4,000 others that are running double features with an estimated audience of forty million people.

Posters are everywhere urging the people to save their wastepaper and not burn it, to segregate it so it does not get in with the trash so that it may be salvaged. From a publicity standpoint, all these activities are probably as great an effort of educational character as has ever taken place in salvage work.

There is scarcely a community in the United States of any consequence that does not have a volunteer salvage committee. We have a membership of well over 400,000 people, and they in turn are working with public spirited organizations, all engaged in salvage work.

Among those who are helping are the school children, hundreds of thousands of them, the Boy Scouts, Girl Scouts, 4-H Clubs, the American Legion, Junior Chambers of Commerce, Junior Commandos, and numerous others.

Then there is the industrial branch. There are in the United States approximately seven hundred of what we call industrial center operation committees. They are organized so that the salvage managers in the various industrial areas will get together to devise better ways and means of salvaging the things we need. In this particular instance, paper is the critical material.

Many cities are doing exceptionally good jobs on collection, because that is the bottleneck.

After the public is educated to saving paper, preparing it, separating it, then it becomes the obligation of men like yourselves, the dealers, and the War Production Board, to see that it is collected. That is where you come in; that is where we come in. Many of you are already giving generously of your trucks. You are helping in many ways in these local salvage drives, but if we are to get this extra tonnage, this extra 100,000 tons that we are not getting today and which we should be getting, we are going to need the effort of every citizen in the United States. We are going to need every member of industry to co-operate in getting this paper in.

If you have not already done it, appoint a salvage manager for your own organization. It is amazing what some of the people in the paper business have found out after they have put in a salvage manager and an executive has gone around to some of the storerooms and found old promotion material that will never be used again, the old trade and technical papers that you will never refer to again, the old checks that are away beyond the period where they will ever serve a useful purpose. It is amazing the tonnage that I have heard some people in the paper business have gotten out of these storerooms.

Use of the Dry Indicator Method for Testing the Water Resistance of Asphalted Papers

E. G. MULLEN, Research Department
American Reenforced Paper Co.

Federal Specifications and certain other specifications issued by the Armed Services have, as one of their requirements, definite water permeability values as determined by "The Dry Indicator Test," TAPPI Standard T 433 m-41 (TAPPI Standard T 433-m). Many asphalted papers have such a high degree of resistance that the color change in the dry indicator powder is very gradual and, as such, presents a definite problem in reading the correct end point.

Codwise (*Tech. Assoc. Papers* 26, 165, 1943; *Paper Trade J.* 116, no. 9:30-33; *Ts* 90-93, March 4, 1943) has shown that it is entirely practical to determine the degree of sizing of paper and paperboard at high temperatures up to the boiling point of water by the flotation method.

A standard test is being used, a modification of the TAPPI standard by using

water at 100 Fahr. This paper will present data showing the relation between the transudation time of asphalted paper and the temperature of the water. It will also present the modified dry indicator test as a more rapid and accurate means of determining the water permeability rate of asphalted papers.

Samples cut 3 by 3 inches were conditioned for testing according to the TAPPI Standard T 402-m. The edges of the samples were sealed to prevent water from entering through the edges and reaching the indicator without going entirely through the material by dipping in a mixture of melted beeswax and rosin. It is often necessary to duplicate the dipping operation to eliminate a wicking action as may occur with sisal, jute, or cotton reinforcing. On quadruplex types and on heavy asphalted boards, it is important that an unbroken film protect the edges of the specimen.

The indicator powder is sprinkled on the specimen in a thin, even layer and care must be taken to avoid bunching or piling of the powder as this seriously affects the transudation time. Seal a 2-inch watch glass over the indicator powder with the melted beeswax-rosin, using a pipet or medicine dropper. The specimen is carefully placed on the testing water. Extreme care must be exercised to avoid trapping air bubbles that might cause uneven wetting of the specimen. In the case of crepe combinations and other products having uneven surfaces, it is first necessary to wet the surface, using a soft brush.

The transudation time is recorded as the point where there is an easily perceptible color change over the entire area of the specimen.

In the first study to show the correlation between transudation time and temperature, two types of asphalted papers were selected.

Type C—an asphalt duplex paper similar to the trade 30-30-30 grade and Type E-1—an asphalt reenforced duplex.

A representative number of asphalted products, as they appear in Federal Specification UU-P-271a were selected and an attempt was made to apply the correlation factor derived from the first study. In defining and describing these products, the same terminology as appears in the specification was used. These are all papers of different characteristics and consist of the following:

Type B-2—A duplex creped in both directions or creped in one direction and pleated or corrugated in the other direction.

Type C—A duplex uncreped

Type D-1—A duplex reenforced in one direction uncreped.

Type E-1—A duplex reenforced in any two directions uncreped.

Type K-1—A single sheet uncreped, coated, saturated, or infused with asphalt.

Type L-2—A duplex uncreped, one sheet coated, saturated or infused with asphalt.

Type L-3—A duplex creped, one sheet coated, saturated or infused with asphalt.

Type M—A triplex uncreped

Eight tests were made on each type of material—four on one side and four on the other.

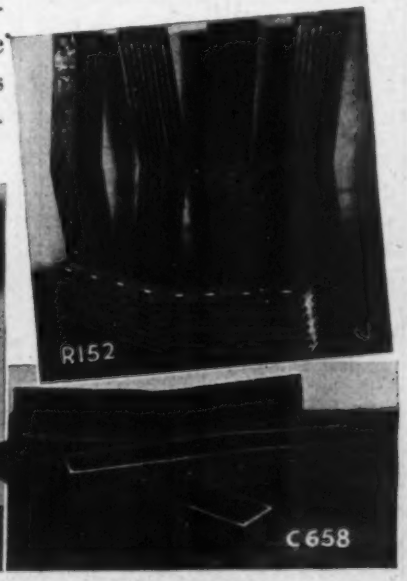
These Manganese Steel Bed Plates *Must Be Good*

Will Rogers said, "All I know is what I read in the papers," and, likewise, all we know about stock beaters is that several roofing-paper mills have re-ordered for twenty years the manganese steel bed plates shown in our pictures.

In disintegrating the coarse rag stock used for roofing felt, a shearing action is desired, requiring a close adjustment between roll and plate. More than ordinary abrasion ensues, and greater likelihood of breaking or dislodging separate knives. The one-piece design of manganese steel bed plate (C-226) has shown good efficiency and economy since 1924; and more recently has been supplemented by the reversible type shown in R-152. Some operators also use the manganese steel boxes or plate supports pictured in C-658.

The toughness and wear resistance of austenitic manganese steel are responsible for the good performance of these plates, as well as other uses in paper mills, such as log haul, barking drum and transfer chain, shingle-cutting anvil rolls and the like.

Bulletin 144-L describes the applications of "the toughest steel known" for pulp mills, and Bulletin 543-G the uses in other paper mills.



Advantages of Amsco-Nagle Centrifugal Pumps described in Bulletin 940.

Amsco
AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Illinois
FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO.
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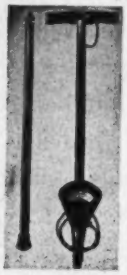
As every paper-maker knows, it requires systematic care to maintain quality standards . . . especially under today's conditions. We suggest as an important first step, the routine use of Cambridge Surface Pyrometers for checking roll temperatures in the drying train. Proper temperature here will go a long way in preventing spots, cockle, curl and blisters.



Write for bulletin 194-S

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Menasha, Wisconsin

Figure 1 shows the relation between the transudation time and the temperature of the testing water. It is interesting to note that although the transudation time of Type C is greater than Type E-1, yet the general slope of the curves is the same. This substantiates the data of other works and seems to prove a distinct relationship between the permeability rate of asphalted papers and the temperature of the testing water. It also reveals that in both cases the rate of permeability at 100 Fahr. is approximately five times as great as at 73 Fahr. Thus, it suggests that the rate of transfer as determined by the dry indicator test is proportionate to the vapor pressure as it is applied to asphalted papers.

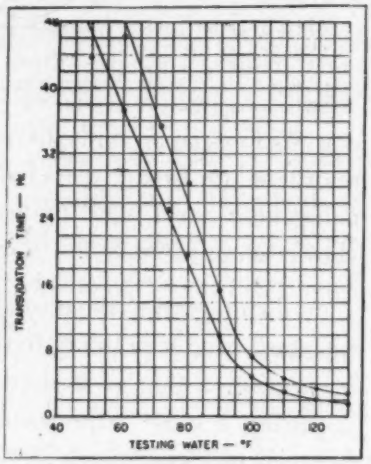


Figure 1

Table I shows a brief description of the papers of different character selected to demonstrate further the relation between tests conducted with the testing water at 73 Fahr. and at 100 Fahr., and to show this permeability relationship to be approximately 5 to 1.

The values obtained at both temperatures were tested, and this factor applied to the 100 Fahr. values. There is exceptionally good agreement. It should be stated that the average agreement derived from eight tests is better on the whole than is the individual sample agreement.

TABLE I

Type	Description	100° F. Value hr.	73° F. Value hr.	100° F. Value X 5 hr.
B-2	Duplex creped ...	3.5	18	17.5
C	Duplex flat	5.5	26	27.5
D-1	Duplex reenforced	5	24	25
E-1	Duplex reenforced	6	39	30
K-1	Single sheet coated	2.25	11	11.25
L-2	Black & Tan duplex	8.5	44	42.5
L-3	Black & Tan creped	5	23	25
M	Triplex	9	47	45

The ability to conduct approximately five times the number of tests (in the same space and time) as would be possible at 73 Fahr. is of considerable importance in routine evaluation of products for the control of production quality. For instance, by this modified test, it becomes far less burdensome to analyze materials for variance and to establish good estimates of average quality and standard deviation, providing a sound basis for adequate sampling of daily production, free from the inaccuracies often arising when a somewhat tedious and long term test method must, of necessity, limit the volume of daily control work.

Another feature of the accelerated test is that, in the great majority of instances, accurate end points can develop and be read during a normal working day, making it possible for one trained operator to complete the entire study. The end point is more accurate because the color change is less gradual and, thus, far more distinct.

Acknowledgment—We wish to express our appreciation of the assistance given by J. P. Sherman and Myron I. Holt in compiling and analyzing the data used in this paper.

The Cupriethylenediamine Viscosity Method as a Control in the Manufacture of Pulp of Specified Viscosity

E. P. WOOD, Technical Director
Pulp Division, Weyerhaeuser Timber Co.

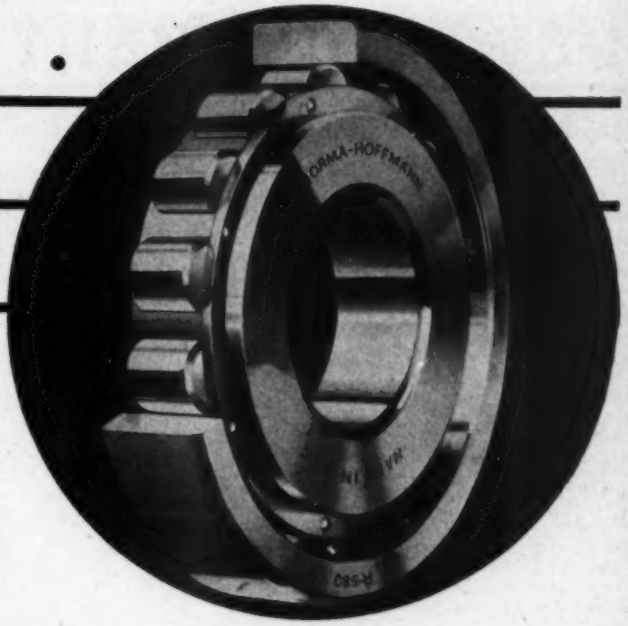
When it became necessary to manufacture a type of pulp where very close viscosity specifications had to be met, there was found to be an immediate need for a quick, accurate and dependable viscosity method which could be used by non-technically trained personnel. Fortunately, sufficient work had been done so that certain things not to do were known, and a method was worked out by the Research Laboratory (Hatch, R. S., *Pacific Pulp Paper Ind.* 16, No. 10:13, October, 1942) for a streamlined viscosity test that could be used, being certain that it would give reliable results. The test was a modification of the Straus and Levy (*Paper Trade J.*, 114, No. 3: 31-34, Jan. 15, 1942) method using cupriethylenediamine as a dispersing agent.

The test has been used regularly for over a year and a half on unbleached, semi-bleached, and full bleached pulp in both slush and dried form. The tests are being made by people without technical training. A single determination can be made by an experienced tester in 20 minutes and two samples run simultaneously require 22 minutes. Furthermore, the procedure has been set up so that individual testers check each other very closely. This test has the requirements desired for a control test as it is accurate, simple, reproducible, and quite short.

By use of this test, plant operation can be controlled within quite narrow limits. Results from a given digester can be obtained in sufficient time to make necessary adjustments in the cooking procedure on subsequent digesters. It has revealed irregularities in digester operation that did not show up in the bleachability test. It has even more possibilities in control of bleaching because of greater ease in obtaining representative samples than in the digesters.

Just what the full value of viscosity control will mean in the manufacture of the paper grades of pulp is yet to be determined, but it is believed this will give another measure of pulp quality which will be helpful in the production of pulp of higher quality and greater uniformity.

For . . . . SEVERE RADIAL and SHOCK LOADS



Test this NORMA-HOFFMANN PRECISION ROLLER BEARING under your hardest conditions. Subject it to heavy continuous loads. Expose it to shock loads. Operate it at high speeds. You'll find it will stand up better than any other single-row bearing, of any type.

A few of the design features explaining this stand-up-ability are: short, solid, parallel roller construction giving maximum load contact area; completely machined, heavy-duty bronze retainer; extreme PRECISION in every detail.

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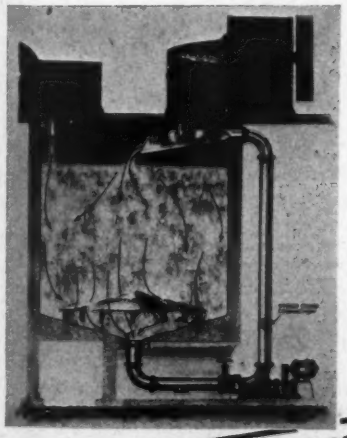

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An improved circulating system of pulp stock agitation that produces a uniformly and continuously agitated mass held to uniform consistency . . . no moveable parts in chest . . . will efficiently agitate stock in any size or shape of chest. (Illustration shows vertical chest) . . . exclusive features patented in the United States and Canada. Furnished complete, ready for installation, designed to fit any existing chest. Complete information upon request.

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NEW EQUIPMENT AND SUPPLIES

Insulator for Arc Welding Electrode Holder

Jackson Products, 3265 Wight St., Detroit 7, Mich., has announced a new type of insulator for its line of insulated tong-type arc welding electrode holders. The insulator is interchangeable with all Jackson insulated tong-type holders in

service. Advantages, claimed by the manufacturer for the holder are: metal-clad jaw covers (insulators), increase holder life; arch construction assures greater strength; rounded surfaces tend to deflect heat and weld splatters; and properly placed vents provide for free flow of air—there is no trapped heat.

Industrial Truck Storage Battery

A new industrial truck storage battery has been announced by the Storage Battery Division of Philco Corporation, Trenton 7, N. J. This battery, named the *Philco Thirty*, is said to incorporate a new principle of fabricated glass tape insulation which lengthens the efficient service life of the battery's power-producing positive plates. The tape is wrapped around the plates in a double layer, one horizontal and the other vertical, both with ample overlap to assure a homogeneous film.

Speedy Method of Surface Inspection

Rex D. McDill, engineer and physicist, 5109 Mayfield Road, Cleveland 21, Ohio, has announced *Faxfilm* as a new, economical, quick method of inspecting surface finishes. Both the equipment and technique for using it are simple. By the use of a solvent, and a small piece of plastic film, a contact replica of any surface can be made very quickly. To make a contact replica, it is necessary only to perform the following operations: (1) Cut one inch of film from roll; (2) wet surface of subject with solvent; (3) press film onto surface; (4) leave film in position for from 30 to 60 seconds; (5) peel film from specimen; and (6) insert film in 2-inch square cardboard frame and seal in position (inside surface of frame is coated with glue and should be moistened previous to inserting film).

The frame fits any standard projector, thus permitting the film to be enlarged 100 diameters or more. The film shows all contours in three dimensions. If desired, the frame can be labeled for identification and future use.

The illustrations below show (1) a surface of Masonite board; the enlargement is 100 diameters; (2) a Faxfilm kit.

An Organic Resin

The U. S. Stoneware Company, Akron, Ohio, has announced the development of *Duralon*, an organic resin made from waste agricultural products such as oat hulls and corn cobs. This resin, currently available for limited commercial and experimental use, is characterized by virtually zero water absorption, insolubility (after activation) in any solvent or combination of solvents, high electrical resistivity, stability in storage and handling and by ease of workability.

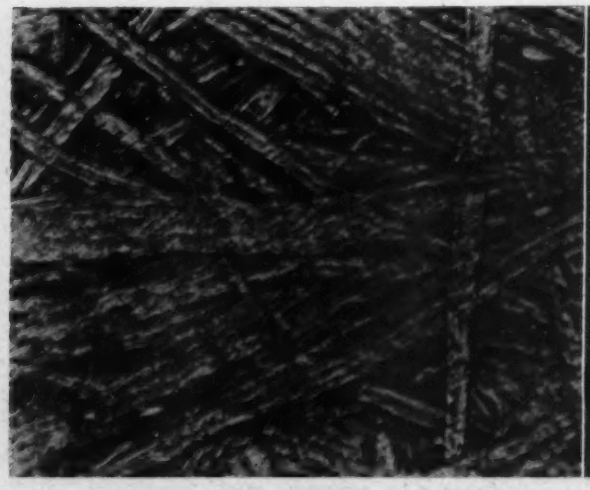
In its pure form, the resin is a heavy, viscous liquid, dark maroon in color. On incorporation of catalysts and application of mild heat, Duralon reverts to an extremely hard, dense, black substance. Varying physica, chemical and electrical properties can be developed in the base resin by incorporation of the usual fillers and lubricants. In certain stages, Duralon can be machined readily by drilling, milling, turning, etc.

According to the announcement, the paramount immediate importance of Duralon is as an impregnant, as a laminating and bonding agent, or as a protective coating material.

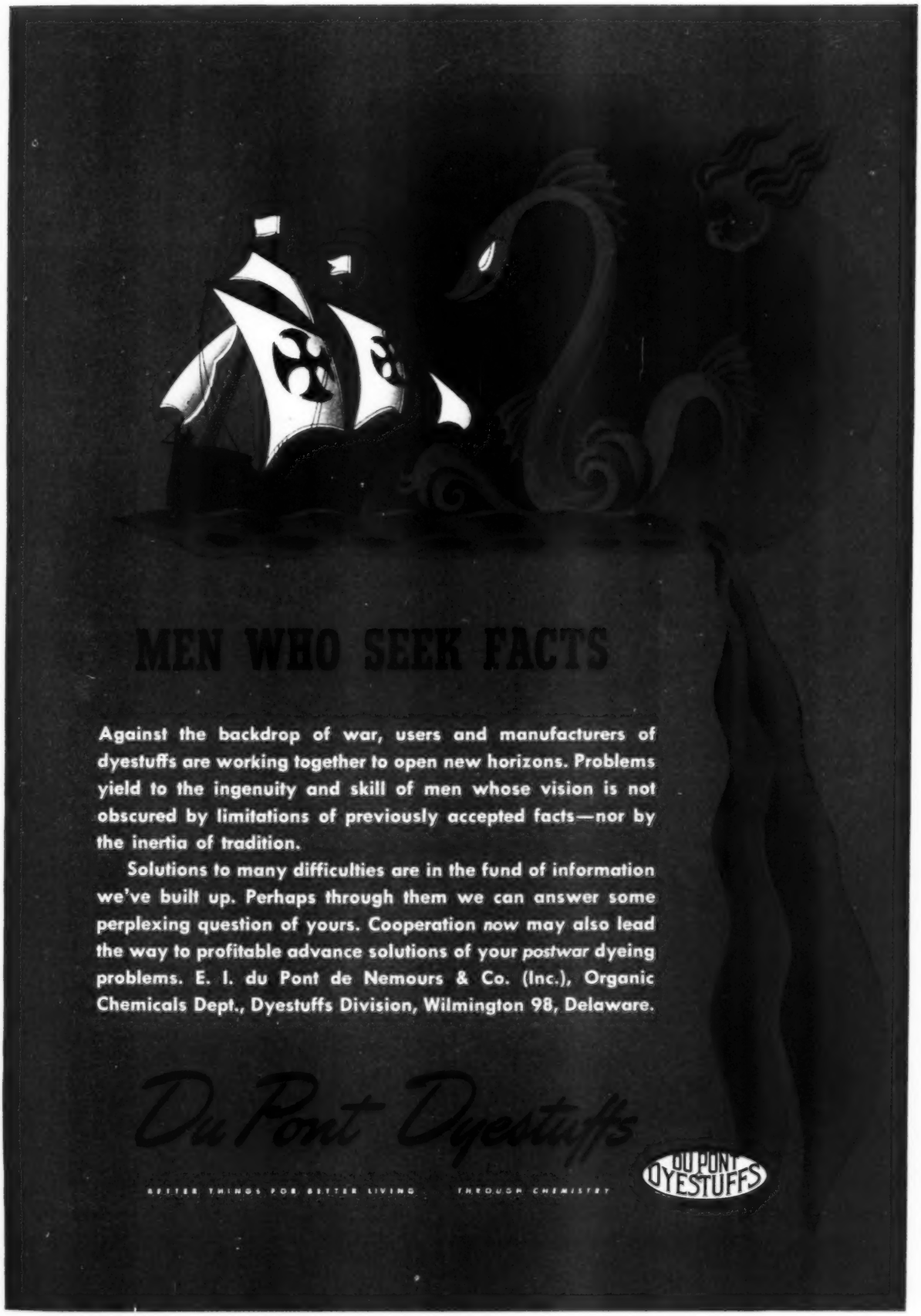
Hydraulic Press

Reimuller Brothers Co., 9400 Belmont Ave., Franklin Park, Ill., has announced a gap style hydraulic press of all steel construction and utilizing a hydraulic foot

control. The foot control is equipped with two levers, one for applying pressure, the other for releasing it as rapidly or as slowly as desired. The press is made in two models, of 10 and 20 ton (50% overload) capacity. Other features cited by the manufacturer include: hollow large



Left—Surface of Masonite board (enlarged 100 diam.). Right—a Faxfilm kit.


MEN WHO SEEK FACTS
Against the backdrop of war, users and manufacturers of dyestuffs are working together to open new horizons. Problems yield to the ingenuity and skill of men whose vision is not obscured by limitations of previously accepted facts—nor by the inertia of tradition.
Solutions to many difficulties are in the fund of information we've built up. Perhaps through them we can answer some perplexing question of yours. Cooperation *now* may also lead the way to profitable advance solutions of your *postwar* dyeing problems. E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Dept., Dyestuffs Division, Wilmington 98, Delaware.
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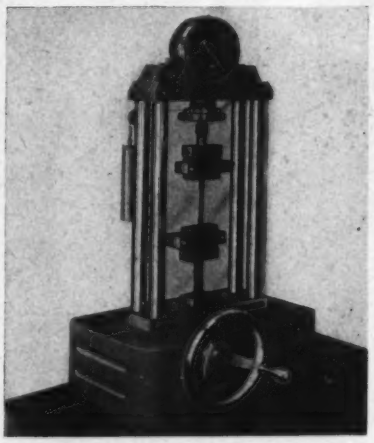
area ram for receiving punches, dies and other fixtures; ground ram; packless sealing rings; aircraft style piston ring plungers; and twin pressure gauge showing pressure in system and tons force at ram.

Tensile Tester

W. C. Dillon & Company, Inc., 5410 West Harrison Street, Chicago 44, Illinois, has announced the Dillon Portable Tensile Tester for use in determining the tensile strength of various weights of paper and paperboard. Among the pertinent specifications of the instrument are the following: over-all height (without floor stand), 37 in.; distance between platens, 21½ in.; minimum jaw separation, 0 in.; maximum jaw separation, 9¾ in. (or 11¾ in. inside jaws); type of drive, worm geared from handwheel loading screw; 20 to 1 ratio, up to 5,000 lb. capacity; 40 to 1 ratio, up to 10,000 lb. capacity.



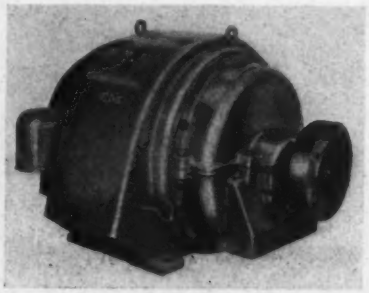
Testers are made in sizes from 0 to 250 lb.; 0 to 500 lb.; 0 to 1000 lb.; 0 to 5000 lb.; 0 to 7500 lb.; and 0 to 10,000 lb.

Where desired, the instrument can be motorized.

Induction Motors

A new line of large, heavy-duty induction motors has been announced by Electric Machinery Mfg. Company, Minneapolis 13, Minn. Made in both squirrel cage and wound rotor models, motor sizes range from 200 hp. to 1000 hp. Special electrical and mechanical modifications can be supplied to meet specific power service and motor application conditions.

Motor frame construction is of fabricated steel plate, or close-grained cast iron depending on the size and type of motor.



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Form-wound stator coils have multi-layer insulation with high dielectric strength and moisture resistance. Likewise, the insulation is somewhat pliable to withstand the strains of heavy service.

The squirrel cage motors have brazed cage windings of high thermal capacity; the wound rotor motors, well-insulated, strongly braced rotor windings.

Other features include: rotor fan and conical baffling for cool motor operation, large motor shaft accurately machined and finished, and sleeve bearings.

Ball or roller bearings can be supplied as can protective enclosure for drip, splash, or other special conditions, and enclosed construction for direct ventilation.

Step-Valve Pump with Outside Spring Loading

Milton Roy Pumps, 1316 E. Mermaid Ave., Philadelphia, Pa., has announced a step-valve pump with outside spring loading. The pump is designed specifically for controlled volume pumping against negative differential pressures. The outside spring-loading provides adjustment for desired load. A single cover plate provides accessibility without disturbing intake or discharge piping. The pumped liquid moves in an almost straight line under the ball checks.

This type valve is available with Milton Roy Pumps in capacities from 10 gph up to 1300 gph; and is supplied for pumping viscous materials, such as liquid latex, acid sludges, tars and asphalts, etc.

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Water, Oil or Grease lubricated. These bearings wear longer; reduce power consumption; save vital war metals. Use Ryertex for: Jordans, Beaters, Press and Couch Rolls, Grinders, Calenders, etc.

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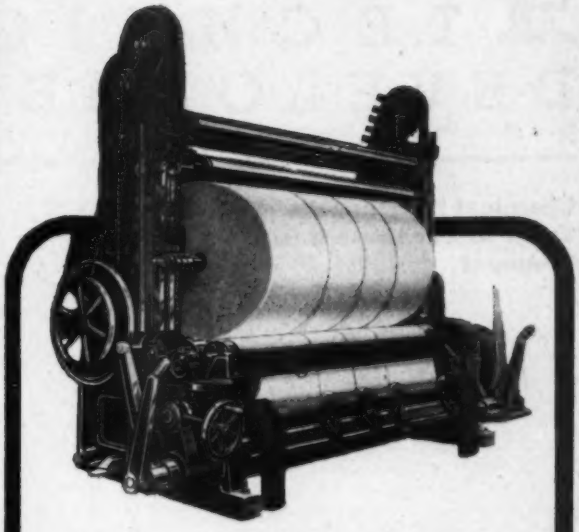

FOR A PRACTICAL POSTWAR PLANNER

Practical postwar planners do not look for slitters and roll winders with "Rube Goldberg" trimmings. They want winders that will keep well ahead of the paper machine at any paper making speed; winders that are easy to thread and that turn out rolls uniformly wound from the core out. For the finishing room they want fast slitters equipped for quick respacing of cutters and designed to convert rolls of controlled density, accurate as to strip width.

Such modern slitters and roll winders are built by this company.

Write for further interesting details.

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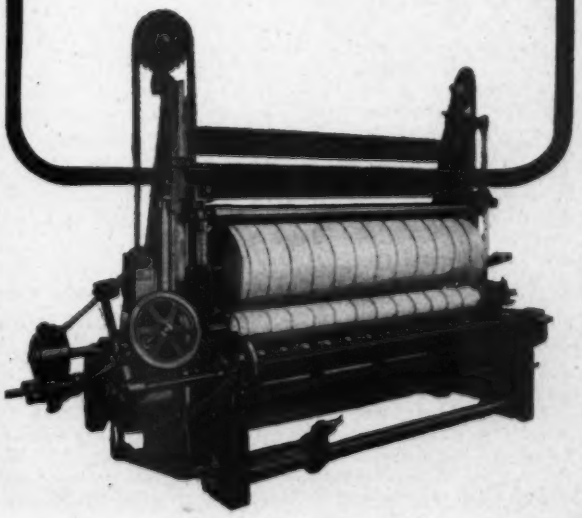

TECHNICAL DEVELOPMENTS

These abstracts are of the latest developments found in the American and foreign press.

Chemical Treatment of Trees to Facilitate Bark Removal

The experiments were carried out at the Canadian Dominion Forest Experiment Station at Petawawa in 1943. Trees were treated with various chemicals in order to prolong the season (beyond that of natural peeling) during which logs could be peeled. The chemicals were applied to the surface of freshly exposed sapwood of girdled white and black spruce, jack pine, balsam fir and aspen, in the form of a paste which was held in place by strips of double-ply kraft paper laminated with an intermediate asphalt layer. Thus the chemicals could be introduced into the tree sap, killing the tree and permitting barking readily, even when the tree was felled long after the usual peeling season was over. The inoculation is best made early in the season, and the most effective chemicals are those which have rapid toxic action, such as arsenic and sodium chlorate. Other chemicals studied were ferrous sulphate, zinc chloride, copper sulphate, potassium dichromate and various mixtures. Detailed data of their individual action are given. The results indicate that bark removal may be facilitated by chemical means. J. D. Hale. Pulp Paper Mag. Canada, 45, No. 8: 615-8; 620 (1944).

The Reactivity of Pulps

This is a lecture which however appears to give new data. It deals especially with the swelling of cellulose in the presence of water, with changes wrought in cellulose on drying with specially reference to so-called cornification. The author states that the following three factors affect the tensile strength of pulps: (1) the degree of polymerization, (2) the lignin content and (3) the hemicellulose content. These effects are discussed at length.

The methods used in the removal of the hemicelluloses from pulps are of importance. Pulps high in lignin take up more moisture than those which have a very low lignin content. However the presence of lignin appears to inhibit swelling. With increasing lignin content, sheet density diminishes. This is noteworthy because hemicelluloses which also increase with rising lignin content, have exactly the opposite effect on sheet density. Hot aqueous alkali has a very different effect from cold alkali, when the pulp is purified. The reactivity or passivity of pulps after pretreatment may be measured by the action of the pulp on acetylation.

A recent method (contained in the unpublished thesis of Steinmann, Darmstadt, 1940) depends on measuring the heat generated when a mixture of acetic acid, acetic anhydride, and sulphuric acid acts upon the pulp under carefully standardized conditions. The time to reach the maximum temperature is also measured, and studies were made of the composition of residues remaining after acetylation. In general this method gives an index of the past history of pulp purification, when the pulps were to be used for cellulose acetate manufacture. If sharp drying was used, before alkaline purification, marked losses in reactivity resulted. Further treatment prior to the actual acetylation was successful only when the water in moist pulp (which in no stage of its production had been subjected to long drying) was replaced by acetic acid. The author explains this acetic acid treatment as an "opening of the sealed capillaries" by the acetic acid with a gradual increase in reactivity. The reactivities of alkali-treated pulps towards both water and acetic acid are discussed at length. So is their reactivity on xanthation. The latter appears to be empirically related to alpha-cellulose content, brightness and xanthate viscosity. Post-treatment of dissolving pulps seems to increase their reactivity on xanthation.

Heiniger (unpublished work) has devised a method for determining the reactivity of pulps that were dried in various ways. This is a measure of irreversible cornification. Although the full method is not given, it depends on the fact that when moist pulp is introduced into dry dioxane only a portion of the water of the pulp is taken up by the solvent, and this may be measured very accurately by determining the change in dielectric constant of the dioxane, which rises about 12% for every 1% of water dissolved (and removed from the pulp). G. Jayme. Cellulosechem. 21, 73-84 (1943).

Application of Ultrachromatographic Methods to Sulphite Waste Liquors

A discussion of ultrachromatographic adsorption of spruce and beechwood sulphite waste liquors is given, as well as an outline of the relationship of ultraviolet fluorescence and lignosulphonate content. The adsorbents used were aluminum oxide buffered with citrate solutions, "Floridin XXF" and "Fankonit KL." Numerous interesting experiments are described, for details of which the original paper should be consulted. G. Scröter. Papier-Fabr. Wochbl. Papierfabr. No. 2, 50-4 (May 1943).

Cellulose Content of Various Woods

The authors have the following approach to the problem determining cellulose in wood:—a modification is made in the procedure of Erich Schmidt, in which either ClO_2 or acidified sodium chlorite solutions are allowed to act upon the wood meal. This produces a holocellulose from which hemicelluloses may be extracted with 8-10%NaOH in an atmosphere of nitrogen. The resulting cellulose is free from hemicelluloses (especially xylans), and the degree of polymerization of this cellulose is 1000-1500 (as compared with cotton which has a d.p. of about 3000). Whether or not the degree of polymerization of all wood celluloses is approximately the same cannot be stated at present. However, the chlorite or ClO_2 action causes practically no degradation. Using this method for cellulose determination, the authors report the following cellulose contents: for black poplar, 50.6%; for aspen, 42%; for spruce 41.5%; for pine, 40%; for birch, 38.5% and for beech 37.5%. The importance of a high cellulose content is discussed and the suggestion is made that in the future, the aim of the forester will be to raise hybrid species high in cellulose and to effect the highest wood yield per unit area. H. Staudinger and E. Husemann. Holz Roh- und Werkstoff, 4, 343-7 (1941), through C. A. 38, 4435 (1944).

Paper Containers for Airborne Produce

The study was made at Wayne University in Detroit. The air hauls over short distances in the case of farm goods are of no economic importance, and shipments under 250 miles are not considered. Perishable goods are the ones which will move best by air. These include strawberries, peaches, tomatoes, etc., but not apples, potatoes, turnips, etc. In season, airborne fruits and vegetables cannot compete with home produce, but the higher prices entailed due to air transportation will probably be met during seasons when these fruits and vegetables are not available in the home market. Refrigeration during air travel could be solved by flying at suitable altitudes.

In the Wayne study the figures arrived at are based on the use of paper containers in consumer sizes with rehandling eliminated. The packaging is assumed to be done right in the growing center and the unopened original package reaches the hands of the consumer. Fruit should reach the consumer within 24 hours anywhere in the U. S. A. Manufacturers are encouraged to study the container problem because the success of airborne shipment will depend in large measure on proper packaging. H. F. Reeves. American Paper Merchant 41, No. 7, 10-11 and 37 (1944); through B.I.P.C. 15, No. 1, 31 (1944).

Insect Attack of Paper; Means of Combating It

The destruction of paper and especially books in tropical countries by the action of termites, "silver-fish," bookworms, and by other insects as well as by rats is discussed. Methods of combating these pests is to have proper construction of shelving under dry conditions, and the use of varnishes and of such chemicals as napthalene, mercuric chloride, phenols, arsenic trioxide, formaldehyde, dichlorobenzene, sodium fluoride, etc. are outlined. L. G. E. Kalshoven. Pharm. Tijdschr. Nederland-Indie 18, 143-64; through British Chem. Physiol. Abstracts B II.105 (1944) and B. I. P. C. 14, 402 (1944).

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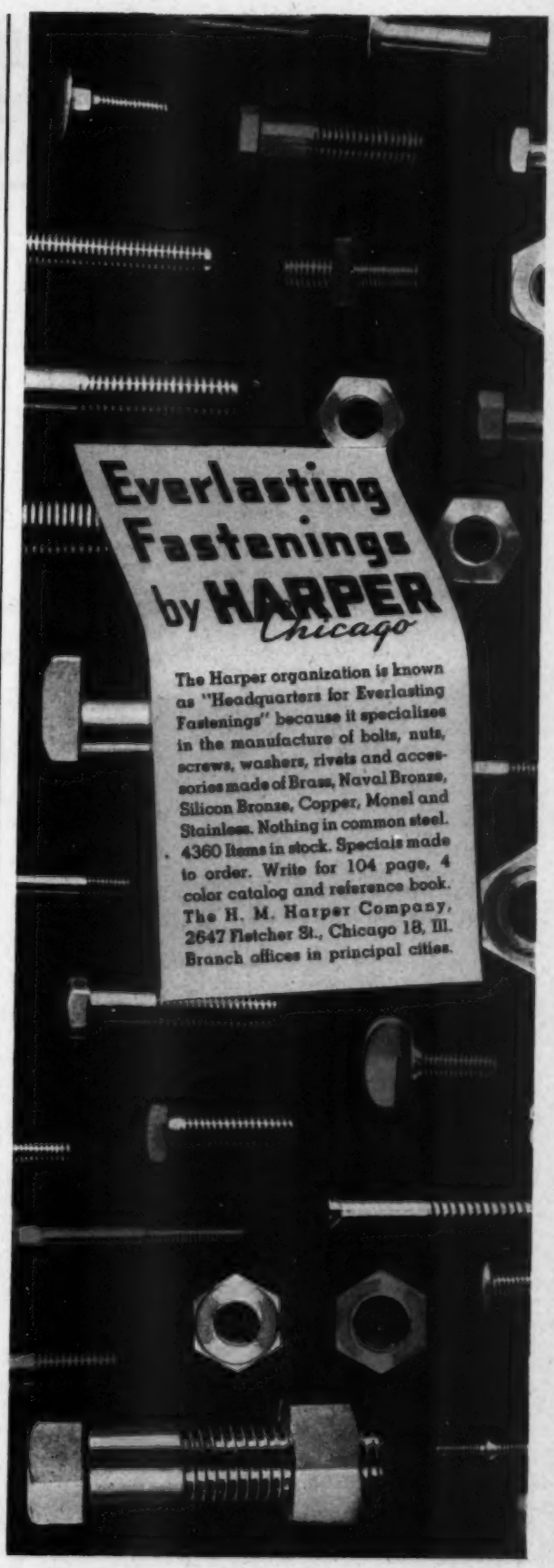
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PAPERMAKING PATENTS

IN THE UNITED STATES—Compiled by James Atkins, Registered Patent Attorney

Inquiries should be addressed to James Atkins, Munsey Building, Washington 4, D. C.

Paper Machinery

Patent No. 2,347,850. Stephen A. Staege, Hamilton, Ohio, assignor to The Black-Clawson Company, Hamilton, Ohio, a corporation of Ohio. Application May 25, 1940, Serial No. 337,230. 2 Claims. (Cl. 92—38).

1. In a paper making apparatus, an enclosing screen casing, an annular screen within said casing and spaced from the walls of the casing, means for supplying pulp to the inside of the screen under pressure to submerge the screen and fill said casing leaving no liquid-air surface therein, the space between the screen and the casing defining an annular discharge chamber for stock flowing through the screen, said casing having an outlet opening at one side thereof and a supply opening at the other side thereof and in direct communication with the discharge chamber but remote from the outlet opening, a forming wire, a closed supply passage leading from the outlet opening of the casing to the forming wire, a receiver for water flowing through the wire, means for returning water from said receiver to the inside of the screen, and means for supplying some of the water from the receiver to the supply opening of the casing to flow around the screen and mix with the screened pulp.

Suction Box Top for Papermaking Machines

Patent No. 2,346,785. Jean Proulx, Hull, Quebec, Canada. Application October 15, 1942, Serial No. 462,449. 3 Claims. (Cl. 92—51).

1. For a suction box cover for a paper making machine, an end-of-grain wood block having the fibres and pores thoroughly impregnated with a mixture of wax and lanolin, the lanoline being in the proportion of about ½-10%.

Apparatus for Screening Paper Stock

Patent No. 2,347,716. Stephen A. Staege, Hamilton, Ohio, assignor to The Black-Clawson Company, Hamilton, Ohio, a corporation of Ohio. Application July 19, 1939, Serial No. 285,362. 7 Claims. (Cl. 92—34).

1. A screen of the character described for screening fibrous material comprising a fixed vertically extending cylindrical screening surface, means providing supply and discharge chambers respectively on the inner and outer sides of said screening surface, means for supplying material to the top of said supply chamber, a rotor operable in the supply chamber and having an annular series of blades provided with screen cleaning portions inclined forwardly toward the screening surface in the direction of rotation and having a maintained scraping engagement with the screening surface in normal operation, means for rotating said rotor at a comparatively slow rate of speed, the blades being of a comparatively large number with a plurality of blades in each quadrant of the rotor so that each opening in the screen is cleaned by the scraping action of the blades up to 30 to 45 times per second although the centrifugal force on the material being screened at the screening surface is substantially negligible, means for withdrawing heavy matter settling in the supply chamber from the bottom of the supply chamber and means for maintaining the discharge chamber completely filled with screened material.

Centrifugal Screening Machine for Paper Stock and Similar Material

Patent No. 2,312,545. Anton J. Haug, Nashua, N. H. Application April 5, 1939, Serial No. 266,044. 6 Claims. (Cl. 92—35). 1. A screening machine for paper stock and similar material, comprising a stationary casing to hold liquid stock, a rapidly rotating screen drum, an inlet for feeding said stock to the inside of the drum, annular partitions in said drum for maintaining internal liquid heads of different centrifugal levels, a tailings section of larger diameter than the drum, a stationary scoop for removing tailings from the drum, means to produce pulsations in the screened stock, and means to guide the tailings through a constritcted opening to the tailings outlet.

Treatment of Paper

Patent No. 2,309,079. Harold S. Mitchell, Chicago, Ill., assignor to Industrial Patents Corporation, Chicago, Ill., a corporation of Delaware. No drawing. Original application September 13, 1935. Serial No. 40,460. Divided and this application November 23, 1938, Serial No. 242,000. 5 Claims. (Cl. 99—171). The method of packaging food products containing fats and oils normally tending to develop rancidity on storage which comprises wrapping said product in a paper having a phenol incorporated therein whereby such development of rancidity is substantially retarded.

Clarification of White Water by Froth Flotation

Patent No. 2,347,147. Robert Ben Booth, Springdale, Conn., assignor to American Cyanamid Company, New York, N. Y., a corporation of Maine. No Drawing. Application May 28, 1942, Serial No. 444,927. 4 Claims. (Cl. 209—167).

1. A method of clarifying paper mill waste waters and recovering the filler and fiber content thereof which comprises subjecting said waste waters to a froth flotation in the presence of only a sufficient amount of a promoter selected from the group consisting of higher fatty acids, rosin acids, talloel, the sodium, potassium and ammonium soaps thereof and black liquor soap to selectively float the filler in a substantially fiber-free condition, said promoter being capable of floating both fiber and filler when present in larger amounts, collecting the resultant concentrated filler and subjecting the residual material to a froth flotation in the presence of a sufficient amount of a promoter selected from the same group to concentrate fibers.

Decalcomania Paper

Patent No. 2,316,120. John MacLaurin, Ware, Mass., assignor to McLaurin-Jones Co., Brookfield, Mass., a corporation of Massachusetts. No drawing. Application August 11, 1939. Serial No. 289,631. 7 Claims. (Cl. 117—36). 7. That improvement in methods of making a decalcomania paper having a backing sheet of paper sized sufficiently to make it stable in dimensions under wide changes in atmospheric humidity, comprising the steps of applying an aqueous dispersion of decalcomania adhesive to one side of said sheet, the proportions of solid constituents in said dispersion being sufficiently great to prevent any substantial penetration of said constituents into the sheet, applying to the opposite side of said sheet a wetting agent dispersed in a non-aqueous solvent which is not miscible in the sheet with the adhesive coating material, and thereafter drying and calendering the sheet.

Coating Equipment

Patent No. 2,334,102. Toivo A. Kauppi, Roger W. Kolderman, and Richard S. McClurg, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Michigan. Application August 26, 1940, Serial No. 354,242. 2 Claims. (Cl. 91—53).

1. In apparatus for coating flexible sheet material, the combination of a rotatable smooth doctor rod of diameter not exceeding 3/16 inch disposed transversely of the path of the sheet material to be coated, means to support the doctor rod rigidly throughout its length, means for heating said rod and means for rotating the rod.

Apparatus for Digester Control

Patent No. 2,336,646. Rutcher Skagerberg, Penn Wynne, Pa., assignor to The Brown Instrument Company, Philadelphia, Pa., a corporation of Pennsylvania. Application July 9, 1938, Serial No. 218,296. 5 Claims. (Cl. 92—7).

1. In a system of digester control, the combination with a digester, of a relief valve for the digester, pressure responsive control means to control the opening of the valve in response to the pressure in the digester for maintaining desired pressure conditions therein, and temperature responsive means to reset the pressure control means in response to the temperature in the digester.

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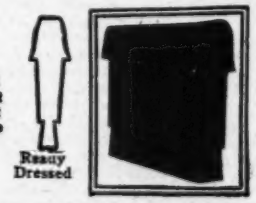

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Askania Regulator Co., 1603 S. Michigan Ave., Chicago 16, Ill.—This company's bulletin No. 101 on Ratio Control has just been published. It points out the manner in which Askania Ratio Control may be applied to many types of proportioning operations in the process industries. A novel feature of the bulletin is the orifice calculation chart, which offers engineers a quick and easy method of orifice size determination for air and gas flows. Copies on request.

Chain Belt Company, Milwaukee, Wis.—A new folder descriptive of Rex Flat Spray Nozzles, for use in the pulp industry, is now available. It illustrates and describes the nozzle uses; gives tabular information concerning their discharge in gallons per minute; their dimensions; a list of materials, sizes and prices. Ask for Bulletin No. 459.

Cochrane Corporation, 17th and Allegheny Ave., Philadelphia 32, Pa.—Cochrane Reprint Number 32, "Some Characteristics of Acid Regenerated Carbonaceous Zeolite," summarizes extensive research work when using sulphuric acid as the regenerant, and shows the characteristics of various salts, singly and in combination. This reprint is important to every one interested in the theoretical considerations of this unique method of water conditioning, or in the purchase of this type equipment for boiler feed or process requirements. New Publication 2975 is descriptive of Cochrane decarbonators for removing certain dissolved gases from water solution. It is well illustrated with charts, diagrams and photos.

Robert Gair Company, Inc., 155 E. 44th St., New York 17, N. Y.—A 28-page booklet, "The Palletized Load," issued by this company may be had free by writing to the company. The booklet has been cleared through the United States Navy, whose experiences with palletizing provide valuable information for shippers, and it is illustrated with official U. S. Navy photographs. Manufacturers who ship in carload lots will find this booklet interesting and profitable reading. It also contains technical data on standardized containers and an offer from the Gair Company's Technical Department to assist in applying its own wartime experiences to the solving of shippers' postwar packaging and handling problems.

Globe Steel Tubes Co., Milwaukee 4, Wis.—A new technical bulletin, No. 112, just published by this company is being distributed gratis to engineers and others who might be interested. It is a reference chart for engineers with tables of bursting pressures of seamless steel tubing from ⅛" to 9¾" O. D.

B. F. Goodrich Company, Akron, Ohio—Just issued is a general booklet on this company's industrial rubber products, which may be obtained on request. Discussions of the company's line of Vibro-insulators, devices of rubber and metal which reduce vibration; molded, extruded, lathe cut and sponge rubber products; rubber lined tanks and valves; products made with Koroseal; V-belts and cements are included. It is profusely illustrated with photographs, charts and diagrams. Also available on request is a catalogue section on this company's Clad protective skin cream, for use either for wet or dry work. The conditions under which either type should be used are described.

The B. F. Goodrich Company, Chemical Division, Rose Building, Cleveland, Ohio—Write this company for a technical bulletin on its Geon latex which has just been issued. It gives general properties and compounding information on the latex, which is a colloidal dispersion of vinyl chloride types of polymers in water. The nature of Geon latex; its stability, physical properties, compounding, including the admixture of water soluble liquids or water soluble and dispersible solids with the latex, and suggested formulations, are discussed.

Link-Belt Company, 307 North Michigan Avenue, Chicago, Ill.—Available for distribution to interested readers is "A Complete Data Book on Worm Gear Speed Reducers for Industrial Applications" Book Number 1824. A bulletin of 100 pages, replete with photographs, dimensioned line drawings, engineering data, horsepower ratings, and tables of weights and dimensions, it is intended to help the reader in making a selection of the type and size of reducer required for a specific service. 31 pages of the book are given to horsepower ratings on Link-Belt reducers. One page is devoted to proper lubrication of worm gear reducers, and another page covers the Short Housing Bases which are available for standard vertical and wall mounted units. It may be had by writing direct to Link-Belt Company at Philadelphia, Chicago, San Francisco, or other offices of the company.

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Books

The Asbestos Factbook (Second Edition)—This publication, a 16-page booklet, presents information on the origin, location, uses, analyses and qualities of asbestos. It also contains a number of terse factual statements, historical and otherwise, on the same product. The price of the booklet is 10c a copy; the publisher, Asbestos, Inquirer Bldg., Philadelphia 30, Pa.

How To Select Foremen and Supervisors—The author of this volume is R. C. Oberdahn; the publisher, National Foremen's Institute, Inc., Deep River, Conn. The chapter headings, which indicate the scope of the work, are: What Is a Foreman?; Duties of a Foreman; Old Method of Selecting Foremen; New Method of Selecting Foremen; Preliminary Selection of Candidates, Establishing Tests, Establishing Minimum Test Requirements, Character Investigation, Review of Record and Final Approval; and Conclusion. Totaling approximately 50 pages, the book is priced at $2.00 a copy.

Illustrated Technical Dictionary—Edited by Maxim Newmark, this book was planned to supply a wide and representative selection of standard definitions as given by various engineering, technical, trade, and industrial organizations, as well as by government agencies. Many new terms, as well as old terms which have recently come into prominence, are defined.

Opening with the definition of abaca, the dictionary closes with the definition of zwitterion. In addition, there is an appendix of supplementary information covering standard abbreviations, units of weight and measure, temperature interconversion tables, table of chemical elements, and geometrical shop data. The book totals 352 pages; and is priced at $5.00 a copy. The publisher is Philosophical Library, Inc., 15 East 40th St., New York 16, N. Y.

Organic Chemistry—This book of over 1100 pages is the work of Louis F. Fieser and Mary Fieser. It is a volume of 40 chapters which are arranged to develop the fundamental principles of organic chemistry in an orderly sequence. A novel feature of the book is the inclusion of chapters dealing with significant applications of organic chemistry to technology and to the biological and medical sciences. Among the chapter headings are: The Nature of Organic Compounds, Saturated Hydrocarbons (Alkanes), Ethylenic Hydrocarbons (Alkenes), Acetylenic Hydrocarbons (Alkynes), Petroleum, Alcohols, Halogen Compounds, Carboxylic Acids, Aldehydes and Ketones, Amines, Stereochemistry, Ring Formation, Rubber, Carbohydrates, Fats and Waxes, Proteins, Microbiological Processes, Structure of Benzene Aromatic Hydrocarbons, Aromatic Substitutions, Nitro Compounds, Sulfonic Acids, Phenols, Quinones, Polynuclear Hydrocarbons, Dyes, Synthetic Fibers, and Synthetic Plastics and Resins. Published in two editions, the trade edition is priced at $8.00 a copy; the college edition, $6.00 a copy. The publisher is D. C. Heath and Company, 285 Columbus Ave., Boston 16, Massachusetts.

The Standardization of Volumetric Solutions (Second Edition)—The contents of this book are divided into eight chapters; namely, General Considerations; Calibration of Volumetric Apparatus; Indicators; Standard Substances; Standard Solutions of Acids and Bases; Standard Solutions of Precipitation Reagents; Standard Solutions of Oxidizing Reagents; and Miscellaneous Standard Solutions, Stock Solutions of Indicators, Stock Solutions of Reagents, Normal Solutions (Tables), Equations Involved in Standardization, Logarithms of Volumetric Factors, Absolute Density of Water, Calibration of Thermometers, Logarithms of Numbers, and Atomic Weights. The author is R. B. Bradstreet; the publisher, Chemical Publishing Co., Inc., 26 Court Street, Brooklyn 2, New York; the price, $3.75 a copy.

Successful Soldering—Written by Louie S. Taylor, assistant professor of Industrial Arts Education, Santa Barbara State College, this book first treats of the soldering method, kinds of solder, and sources of heat. Then it covers the special problems of soldering various metals such as black iron, zinc, stainless steel, copper, aluminum, tin, Britannia metal, and lead. The book is of pocket size. Each chapter, and there are eleven, is short. The price of the book is $1.00 a copy; the publisher, McGraw-Hill Book Co., Inc., 330 W. 42nd Street, New York 18, N. Y.

Tennessee Manufacturers—This paper-covered booklet is a directory of products, plants and places within the State of Tennessee. It is a booklet of 76 pages containing a wide range of reference information. The publication may be obtained from the Tennessee State Planning Commission, Nashville, Tennessee. The price is 50 cents a copy.

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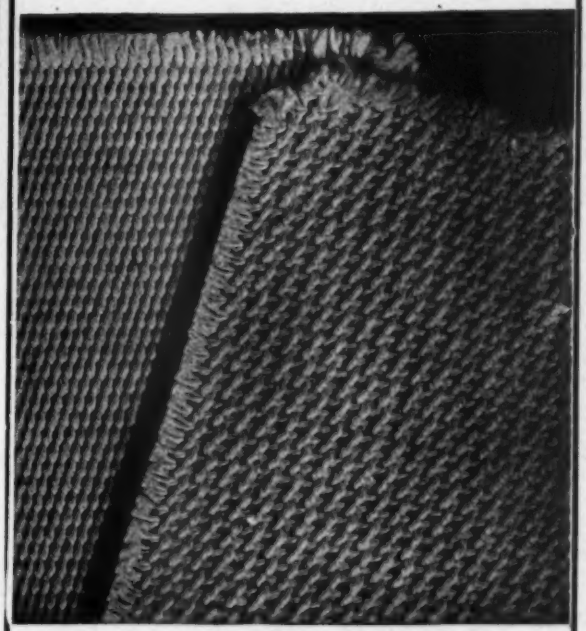

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CURRENT MARKET QUOTATIONS

RAGS (Domestic)

NEW RAGS

OPA ceiling prices in sales to consuming mills delivered buyer's usual receiving point, with brokers' allowance not in excess of 5 per cent.

	per cwt.
Blue Overalls	-5.50
Corduroy, Men's	-3.50
Corduroy, Ladies'	-3.00
Washables, No. 1	-3.00
Percales	-4.75
New Soft Blacks	-3.75
Light Prints, No. 1	-4.50
Khaki Cuttings—	
Bleachable	-4.25
Unbleachable	-3.50
New White Canvas	-6.50
New Mixed Blacks	-3.25
Canton Flannels, Bleached	-7.00
Shirt Cuttings—	
New White No. 1	-7.25
No. 1 White Headings	-7.25
White Shrunk	-5.00
Silesias No. 1	-5.75
New Unbleached	-7.50
Fancy	-3.50
Linen Cuttings—	
American	-5.00
White	-14.00
Grey	-14.00

RAGS (Domestic)

f. o. b. New York City

OLD RAGS

OPA ceiling prices in sales to consuming mills f. o. b. cars at points of shipment, with brokers' allowances of $1 to $2 a ton depending on the value of the grade involved.

Roofing—	per ton
No. 1	31.00
No. 2	29.00
No. 3 and No. 4	27.00
Twos and Blues—	
Repacked	44.00
Thirds and Blues—	
Repacked	44.00
Miscellaneous	36.00
Whites, No. 1—	
Repacked	76.00
Miscellaneous	64.00
Whites, No. 2—	
Repacked	58.00
Miscellaneous	53.00

RAGS (Foreign)

ex dock New York City

NEW RAGS — per cwt. — Nominal

New Dark Cuttings
New Mixed Cuttings
New Light Silesias
Light Flannelettes
Unbleached Cuttings
New White Cuttings
New Light Oxfords
New Light Prints

RAGS (Foreign)

ex dock New York City

OLD RAGS — per cwt. — Nominal

No. 1 White Linens
No. 2 White Linens
No. 3 White Linens
No. 4 White Linens
No. 1 White Cottons
No. 2 White Cottons
No. 3 White Cottons
No. 4 White Cottons
Extra Light Prints
Ord. Light Prints
Med. Light Prints
Dutch Blue Cottons
French Blue Cottons
French Blue Linens
Checks and Blues
Linsey Garments
Dark Cottons
Old Shopperies

ROPE and BAGGING

f. o. b. and ex dock New York City

Gunny No. 1—	per cwt.
Foreign	Nominal
Domestic	2.75 to 3.00
Wool Tares—	per cwt.
Light	3.00 to 3.25
Heavy	3.25 to 3.50
No. 1 Scrap Bagging	2.75 to 3.00
Manila Rope—	
No. 1 large	-*115.00
No. 1 small	-*105.00
Sisal Rope—	
No. 1 large	-*95.00
No. 1 small	-*80.00
New Burlap Cuttings	5.50 to 6.00
Jute Threads—	
Foreign (Nom.)	6.25 to 6.50
Domestic	5.50 to 5.75
Strings—	
No. 1 sisal	-*30.00
No. 2 sisal	-*60.00
Soft jute	5.00 to 5.50
Mixed	1.50 to 2.00

*OPA ceiling price per ton f. o. b. shipping point.

WASTE PAPER

OPA ceiling prices f. o. b. points of shipment for machine compressed bales weighing not less than 500 pounds (with differential of $5 per ton less on certain grades for loose or bundled stock), and brokers' allowance of 4 to 9 per cent.

Shavings—	per ton
White Env. Cuts, One-Cut	67.50-
Hard White Env. Cuts	62.50-
Hard White, No. 1	57.50-
Soft White, No. 1	50.00-
Soft White, One-Cut	57.50-
Soft White, Misc.	43.00-
Fly Leaf, No. 1	33.50-
Fly Leaf, Woody, No. 1	25.00-
No. 2 Mixed Col. Woody	18.00-
Flat Stock—	
No. 1 Heavy Books and Magazines	38.50-
Mixed Books	22.00-
Ledger Stock—	
No. 1 White	46.00-
No. 1 Mixed (Colored)	40.00-
Manilas—	
New Env. Cuttings	53.00-
New Env. Cuts, One-Cut	57.50-
Extra Manilas	39.00-
Manila Tab Cards, Free of Ground Wood	45.00-
Ground Wood Manila Tab Cards	27.00-
Kraft—	
Envelope Cuttings	65.00-
Mixed Env. or Bag Cuts	55.00-
Tripled Sorted No. 1 Brown	50.00-
New 100% Cor. Cuts	45.00-
No. 1 Old Assorted	35.00-
News—	
White Blank	33.00-
Overissue	22.00-
No. 1 Baled	20.00-
Old Corrugated Containers	28.00-
New Corrugated Cuts	18.00-
Mill Wrappers	22.00-
Box Board Chips	14.50-
No. 1 Mixed Paper	19.00-

CHEMICALS

f. o. b. shipping point

Alum (Papermakers)—	
Lump, cwt.	4.25-
Ground, cwt.	4.00-
Powdered, cwt.	4.40-
Blanc Fixe—	
Pulp, bulk, ton	40.00 to 46.50
Dry, barrels, pound	60.00 to -
Bleaching Powder—	
Drums, cwt.	2.25 to 3.10
Casein (Domestic Standard)—	
20-30 mesh (bags), lb.	24.00 to 24.75
80-100 mesh (bags), lb.	—
Argentine, lb.	18.00 to 20.50
China Clay—	
Domestic Filler Bulk (mine) ton	7.50 to 15.00
Domestic Coating Bulk (mine) ton	11.00 to 22.00
Imported (ship side) Bulk (lump) ton	14.00 to 26.00
Chlorine—	
Tank cars (wks) cwt.	2.00 to 2.25
Gelatine (silicin), lb.	.90 to .95
Glyc. (C.P.) drums, lb.	18.25 to 18.75
Litharge, powd., bbl., lb.	.09 to -
Rosin (Gum)—	
New York, per 100 lbs.	
E	6.31-
F	6.41-
G	6.43-
WW	7.21-
Rosin (Wood), carlots	4.18-
Salt Cake—	
Dom. bulk (wks) ton	15.00 to 16.00
Imp. bulks on dock— (Atl. ports) ton (Nom.)	20.00 to
Soda Ash—	
Bulk (works), cwt.	.90 to .95
Paper Bags, cwt.	1.03 to 1.25
Barrels, cwt.	1.05 to 1.35
Soda (Caustic)—	
Solid, drums, cwt.	2.30 -
Ground and flake, drums, cwt.	2.70 -
Sodium Silicate—	
60 deg., 55 gal. drums, (works) cwt.	1.65 to 2.05
40 deg., 35 gal. drums, (works) cwt.	.80 to 1.45
Starch—	
Pearl, 140 lb. bags, cwt.	3.72-
Pearl, barrels, cwt.	3.83-
Paper (Sp.) bags, cwt.	3.83-
barrels, cwt.	3.92-
Sulphur (crude)—	
(mine) bulk, long ton	16.00 to ——
Talc—	
Dom. 100 lb. bags (mine) ton	16.00 to 21.00
Imp. bulk, ton (Nom.)	—
Titanium Dioxide—	
Barium Pig., bbls., lb.	.05¾ to .06
Calcium Pig., bbls., lb.	.05 to .05¼
Zinc Sulphide, bbls., lb.	5.60 to 5.85

WOOD PULP

OPA maximum prices applicable to wood pulp delivered to consumer mills located East of the Continental Divide exclusive of Denver, Colo. (West of the Continental Divide and in Denver, Colo., ceilings are $6 per ton lower):

Bleached softwood sulphite	80.00
Unbleached softwood sulphite	74.00
Bleached hardwood sulphite	83.50
Unbleached hardwood sulphite	71.50
Northern bleached sulphate	85.00
Southern bleached sulphate	79.00
Northern semi-bleached sulphate	82.00
Southern semi-bleached sulphate	75.00
Northern unbleached sulphate	75.00
Southern unbleached sulphate	63.50
Bleached soda	72.00
Unbleached soda	68.00
Ground wood pulp	50.00
Ground wood—paper machine dried and mutilated	53.00
Sulphite screenings	43.50
Sulphate screenings	38.00
Ground wood screenings	32.00
Northern unbleached sulphate siderums	73.00
Southern unbleached sulphate siderums	63.50
Standard news print siderums	50.00

PAPER

f. o. b. New York City

Boards—	per ton
Binders	84.00-
Chip	48.00-
Chip, tube and can	50.00-
Chip, full-bending	52.50-
Chip, agt. mla. lined	60.00-
Coated, white patent .016	80 00-
.020 and heavier	75.00-
Kraft liner	62.00-
News	48.00-

Book Papers—OPA base maximum prices per cwt. 4 cases or equivalent, f. o. b. mill with quantity, weight, manufacturing and other differentials allowed:

Uncoated (Untrimmed)	
Book, White (M. F.)—	
A Grade E. F.	8.25
B Grade E. F.	7.80
C Grade E. F.	7.55
D Grade E. F.	7.30
E Grade E. F.	7.05
No. 2 Uncoated Offset 4 sides. White	8.45
Coated White (Trimmed 4 sides)	
No. 1 Glossy	11.90
No. 2 Glossy	10.85
No. 3 Glossy	10.15
No. 4 Glossy	9.85
No 5 Glossy	9.30
C2S Offset	10.40
C1S Litho (Varnish)	10.05
C1S Litho (Non-Varnish)	9.80

Writing Papers—OPA base maximum prices per cwt. on writing papers, f. o. b mill with zone, quantity, packing and other differentials allowed:

Rag Content Bond—	per cwt. 20 lb.	16 lb.
Extra 100% Rag	34.00	34.00
100% Rag	28.00	28.00
75% Rag	20.00	20.00
50% Rag	16.00	17.25
25% Rag	14.00	15.00

Rag Content Ledger—	per cwt. Zone 1
Extra 100% Rag	35.00
100% Rag	29.00
85% Rag	26.00
75% Rag	21.00
50% Rag	17.00
25% Rag	15.00

Sulphite Bond—	per cwt. 20 lb.	16 lb.
Air dry, watermarked	12.75	13.70
No. 1 (M. F.) watermarked	9.00	9.70
No. 2 (M. F.) watermarked	8.25	8.85
Plain (M. F.) unwatermarked	7.50	8.20

Sulphite Ledger—	per cwt. Zone 1
No. 1 (M. F.) watermarked	10.00
No. 2 (M. F.) watermarked	9.25
Plain (M. F.) unwatermarked	8.50

Glassine (f. o. b. mill)—	per cwt.
Embossed (25 lb. up)	13.75 to 14.25
Bleached (25 lb. up)	12.75 to 13.25
Unbleach. (25 lb. up)	11.50 to 12.00
Greaseproof—	
Bleach. (25 lb. up)	11.00 to 11.50
Unbleach. (25 lb. up)	10.00 to 10.50

News—OPA Ceilings	per ton
Rolls, Standard (Contract)	58.00
Rolls, Lightweight (Cont.)	62.00
Rolls (Spot)	(nominal)
Sheets	66.00

Tissues (Carlots)—	per ream
White, No. 1	1.12½ to 1.20
White, No. 2	1.00-
Bleached Anti-Tarnish	1.15-
Colored	—
Anti-Tarnish Kraft	.70-
Manila	.90 to .95
Napkins, semi-crepe (12½ lb. to M shts.) per cs.	.60-
Napkins, full crepe and emb'sed (12½ lb. to M shts.) per cs.	.60-
Toilet, Bleached (M shts.) per cs.	5.65-
Toilet, Unbleached (M shts.) per cs.	4.25-

Towels—	per case
Bleached	3.20 to 3.75
Unbleached	2.90 to 3.05

Wrappings (Kraft)—	per cwt.
Super-Standard	5.25 to 7.65
No. 1 Wrapping	5.00 to 7.40
Standard Wrapping	4.75 to 7.15
Standard Bag	4.37½-

Wrappings (Sulphite and Bleached Kraft)— (Rolls, f. o. b. mill)

Bleached papers— M.F. & M.G. Waxing.	per cwt.
20 lb. (Carloads only)	7.25 to 7.80
(10,000 lbs.)	7.50 to 7.75
Drug wrapp. 35 lb.	7.00 to 7.25
Unbleached Papers—	
Com. Grd. Butch. 40 lb.	5.50 to 5.75
No. 1 Butchers	5.75 to 6.00
No. 1 Imit. Parch & Dry Fin. Groc. Sulphite 30 lb.	6.25 to 6.50
No. 2 Imit. Parch & Dry Fin. Groc. Sulphite 30 lb.	6.00 to 6.25
Steam Finish, 50 lb.	5.00 to 5.25
Water Finish, 40 lb.	5.50 to 5.75

Manilas—	
Envp. Mla., Sub. 16-40 (No. 1)	6.00 to 6.50
Envp. Mla., Sub. 16-28 (No. 2)	5.75 to 6.00
Envp. Mla. (Prices based on large sheets untrim'd reammarked, in bdls.)	
Wrapp. Mla. 35 lb. up—	
No. 1	6.00 to 6.25
No. 2	5.75 to 6.00
M. G. Sulphite and Kraft (other than Waxing)	
Grade A-22 lb.	7.20 to 7.40
Grade B-30 lb.	6.75 to 7.00

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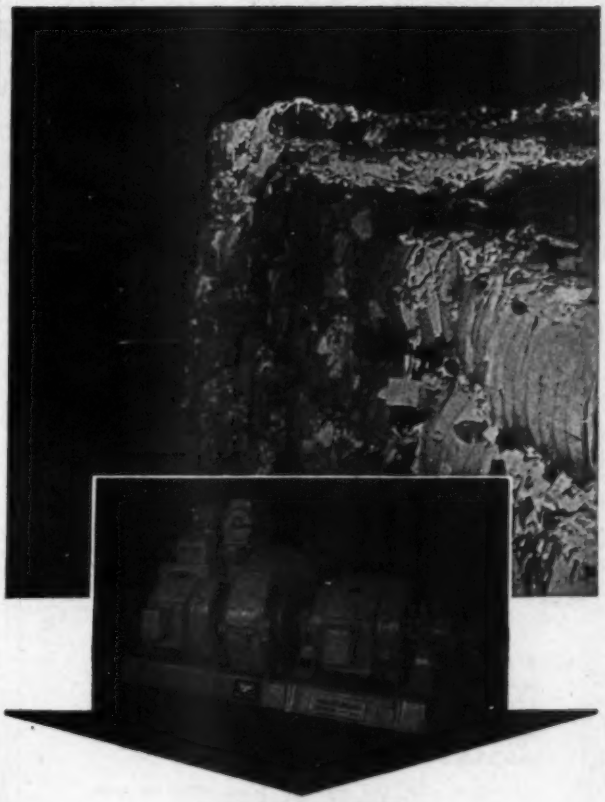

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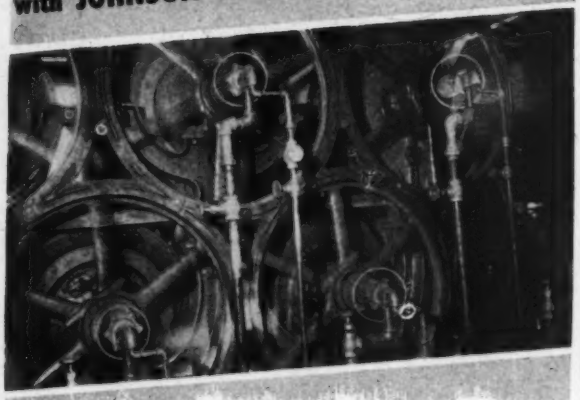

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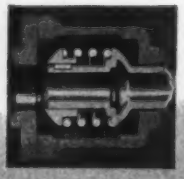

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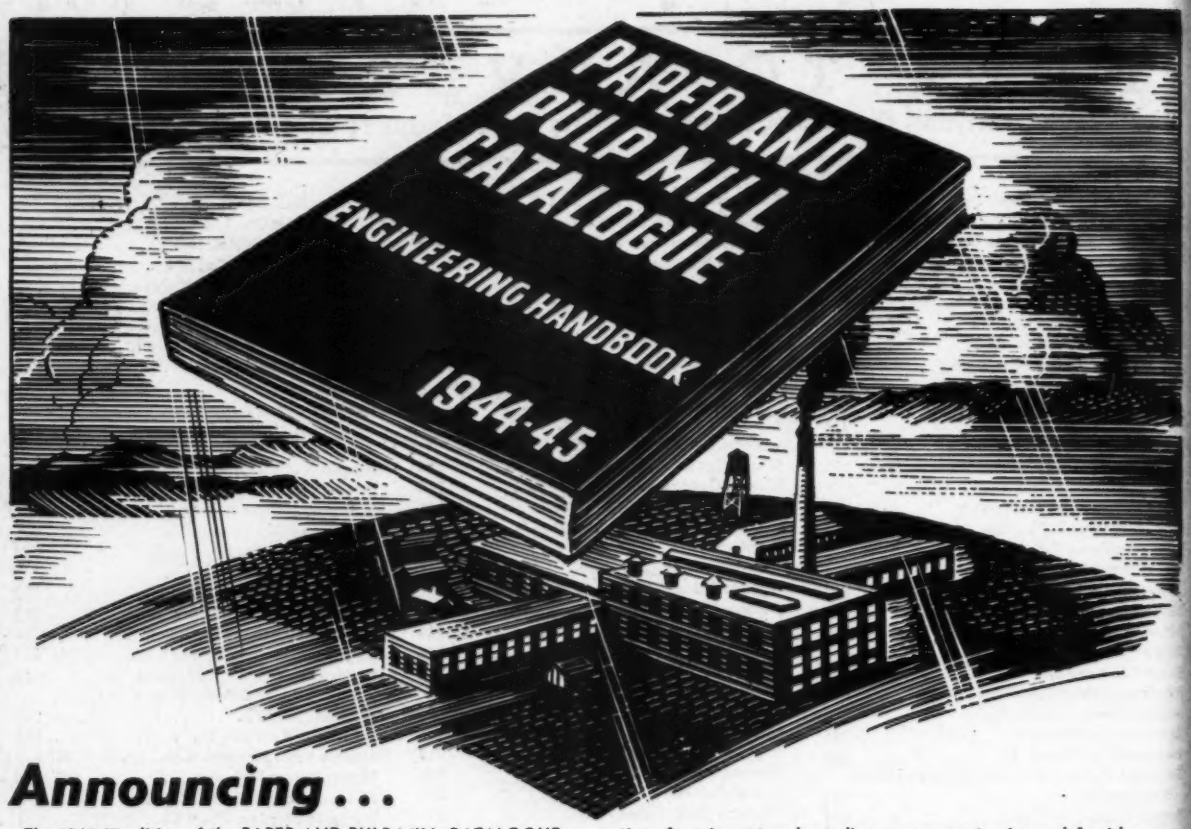

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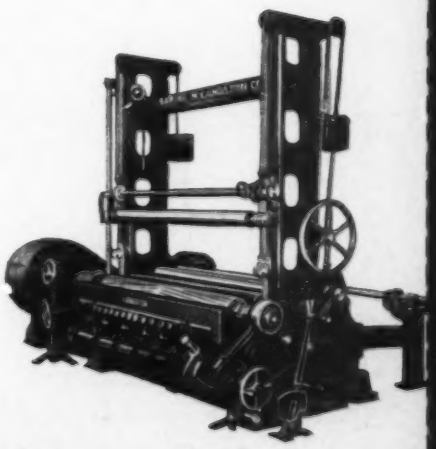

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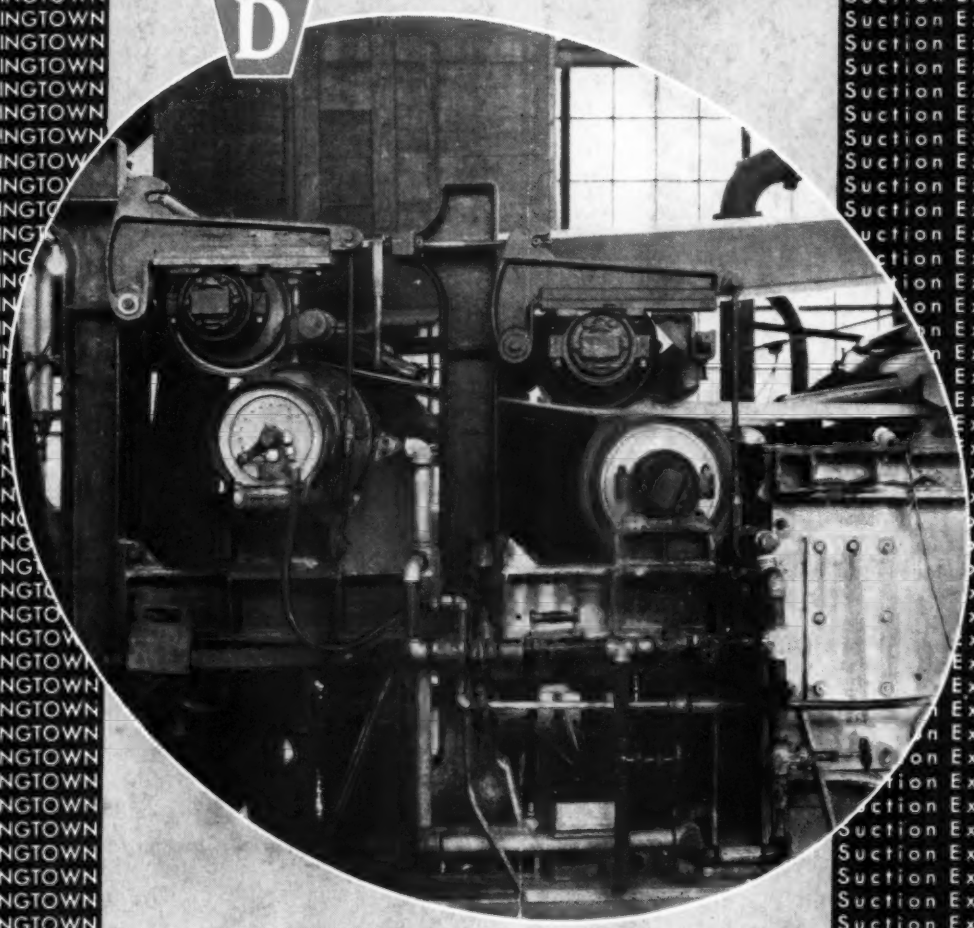

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